

NARRATIVE - EXHIBIT “B”

Drawing and Floor Plan of
Wabash County Dispatch Center

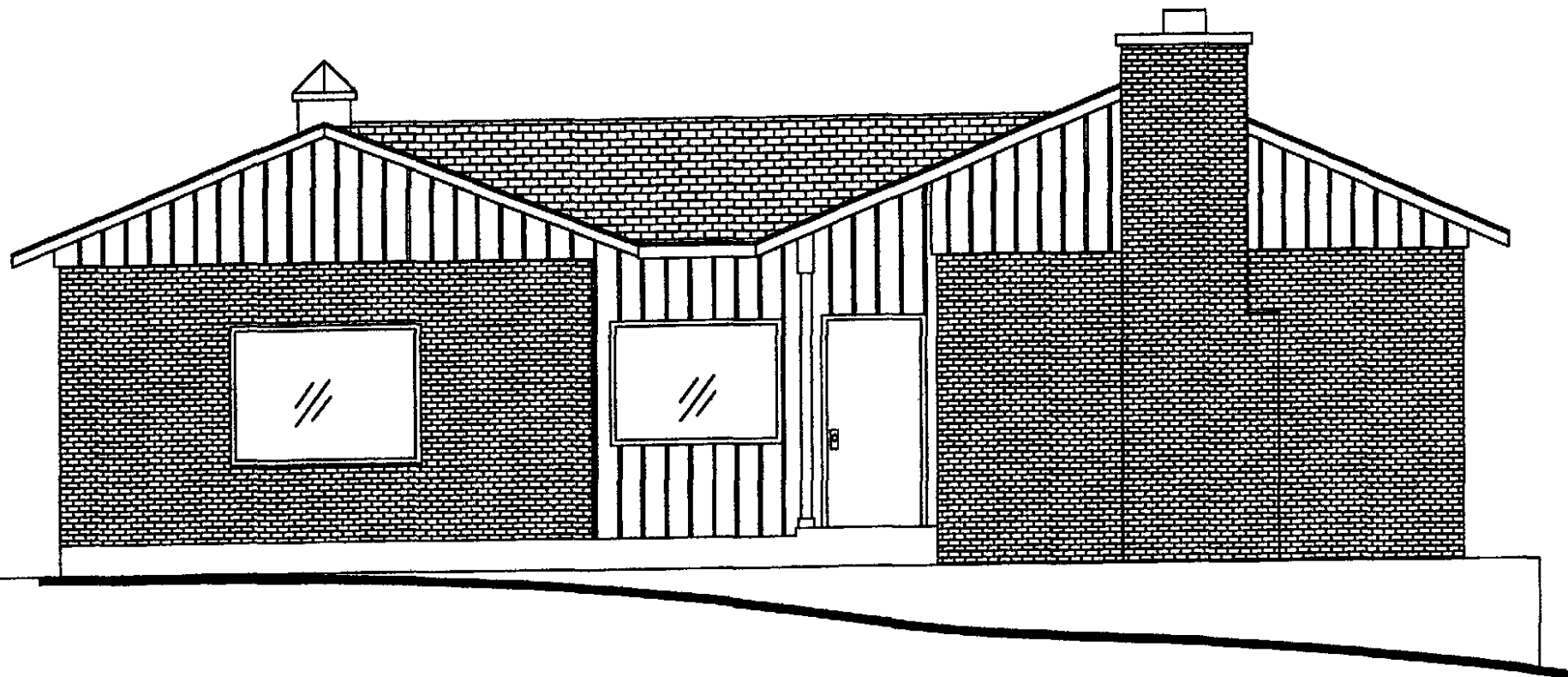
MT. CARMEL HIGH SCHOOL
DRAFTING DEPT.

DRAWING NO. 1 of 3

FRONT ELEVATION

WABASH COUNTY 911 CENTER

DATE: MARCH 7, 2000



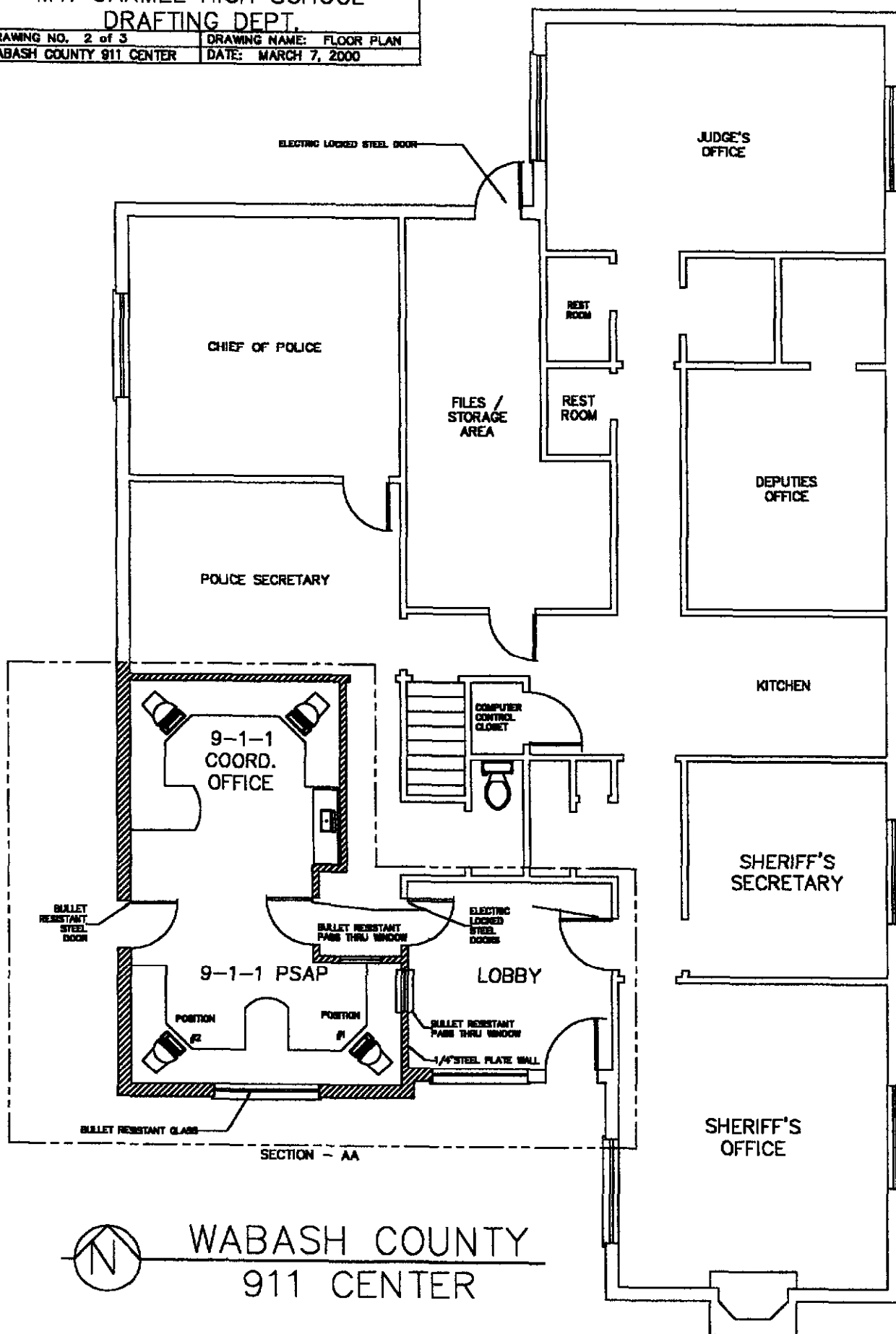
MT. CARMEL HIGH SCHOOL
DRAFTING DEPT.

DRAWING NO. 2 of 3

DRAWING NAME: FLOOR PLAN

WABASH COUNTY 911 CENTER

DATE: MARCH 7, 2000



WABASH COUNTY
911 CENTER

MT. CARMEL HIGH SCHOOL
DRAFTING DEPT.

DRAWING NO. 3 of 3

SECTION AA - FLOOR PLAN

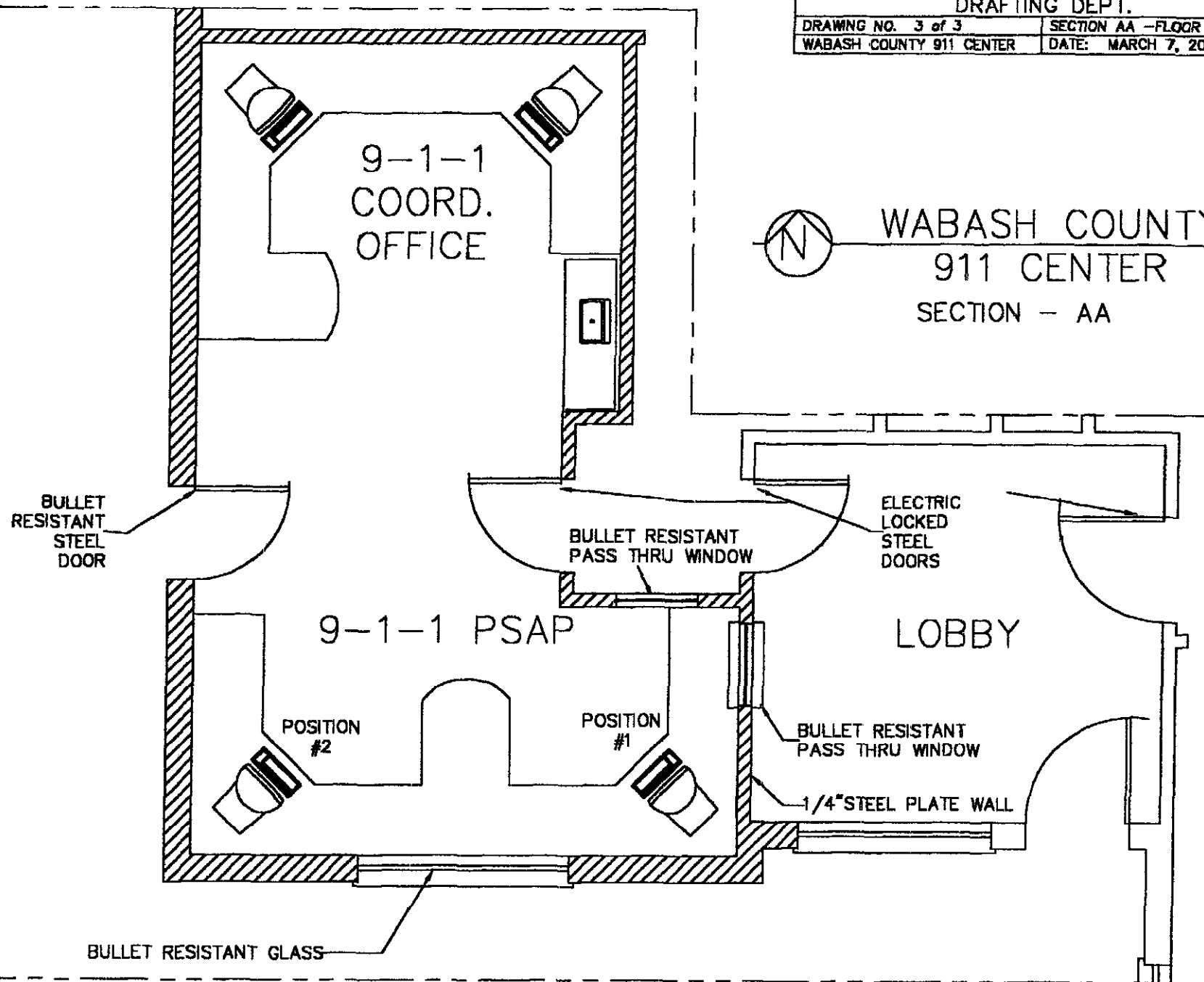
WABASH COUNTY 911 CENTER

DATE: MARCH 7, 2000



WABASH COUNTY
911 CENTER

SECTION - AA



NARRATIVE - EXHIBIT “C”

Information about Generator and Annunciator Panel

EVAPAR

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SUBMITTALS
FOR
WABASH COUNTY E-911

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Bill of Materials
for
Wabash County E-911

Qty. 1 Model 100DGDB Onan Diesel Generator Set

100 KW @ 60 Hz., standby rating

- L032 Rating - 60 Hertz, standby power
- F179 Skidbase - Housing ready, housing included
- R098 Voltage - 120/208, 3 Phase Wye
- B414 Alternator - 60 Hz, 12 lead, upper Broad Range, 125C
- B240 Exciter / Regulator - Torque Match
- A356 Engine Governor - Mechanical, 5% droop
- KM65 Circuit Breaker Mtg - Single Brkr, left of control
- KM43 Circuit Breaker - 400A, 3P, 600/690, SS RMS,
80%, UL/IEC
- H389 Shutdown - Low coolant level
- H559 Set Control - Detector 12, with AC meters
- H536 Display Language - English
- E074 Engine Cooling - Radiator, 50C Ambient
- C168 Fuel Tank - Dual Wall Subbase, 24 Hour capacity
- C157 Switch - Low fuel level, subbase
- C169 Switch - Annunciator, liquid in rupture basin
- H036 Coolant Heater - 120 Volt AC, single phase
- L060 Compliance - Emissions, US EPA Mobile off highway
- F182 Housing - Weather protective, includes muffler
- L028 Warranty - 1 year base
- A322 Packing - Skid, poly bag
- F065 Rack - Battery

Qty. 1 Model OT400 Onan Automatic Transfer Switch

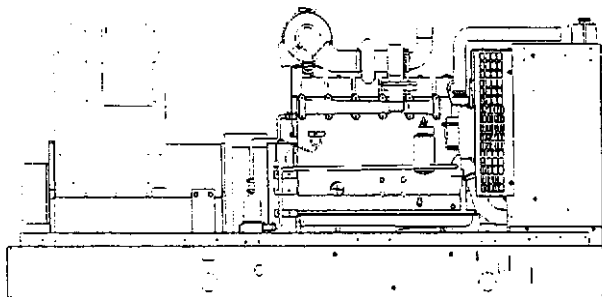
400 Amp, 208 Volt, OT Series

- S053 Current Rating - 400 Amps
- A028 Poles - 3
- A035 Application - Utility to genset
- A046 Listing - UL
- A044 Frequency - 60 hertz
- R023 Voltage - 240 VAC
- A042 System - 3 Phase, 3 wire or 4 wire
- B001 Cabinet - Type 1
- D001 Meters - None
- J021 Program Transition - 0.5 - 7.5 seconds
- K001 Battery Charger - 2 Amp, 12/24 VDC
- J001 Clock - 7 Day Exerciser



**80kW - 100kW 60 Hz
65kW - 85kW 50 Hz
Diesel Fueled
6B Series**

Model	Data Sheet	Standby kW (kVA)		Prime kW (kVA)	
		60 Hz	50 Hz	60 Hz	50 Hz
DGDA	D-3022	80 (100)	65 (81)	72 (90)	60 (75)
DGDB	D-3023	100 (125)	85 (106)	90 (113)	80 (100)



Standard Genset Features

CUMMINS® HEAVY-DUTY ENGINE

- Rugged 4-cycle industrial diesel engine
- Excellent transient performance

ALTERNATOR

- Low reactance 2/3 pitch
- Class H insulation
- Exceptional short circuit capability
- Low waveform distortion with non-linear loads
- Excellent motor starting capabilities

ELECTRONIC VOLTAGE REGULATOR

- Precise regulation
- Underfrequency compensation
- Torque-matched system provides fast recovery from transient load changes

FULL LOAD PICK-UP

- Gensets accept 100% of full nameplate standby rating in one step, in compliance with NFPA110, Paragraph 5-13.2.6.

COOLING SYSTEM

- High ambient 122° F (50° C) system optional, 104°F (40°C) system standard

SKID BASE

- Supports engine, alternator and radiator with integral vibration isolation

E-COAT FINISH

- Dual electro-deposition coating system provides high resistance to scratching, corrosion and paint fading

STANDARD CONTROL SYSTEM

- Run-Stop-Remote Switch
- Remote Starting, 12 Volt, 2 Wire
- Safety Shutdowns

OPTIONAL CONTROL SYSTEMS

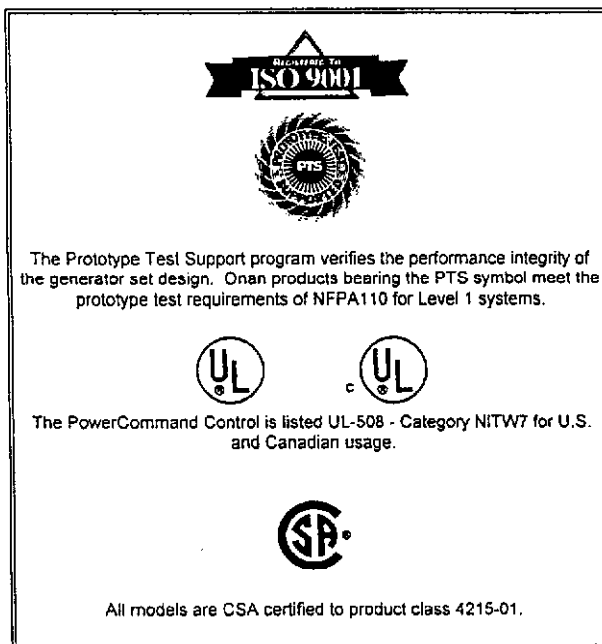
- Detector 12 Control NFPA 110 Compliant
- PowerCommand Advanced Digital Control

SINGLE-SOURCE RESPONSIBILITY

- Design, manufacture and test of all major set components and accessories by Onan Corporation and affiliated companies.

SINGLE-SOURCE WARRANTY

- All generator set components and systems are covered by an express written limited one-year warranty
- Optional extended warranty programs available



Generator Set Specifications

Voltage Regulation, no load to Full load:	±1.0%
Random Voltage Variation:	±1.0%
Frequency Regulation:	5.0%
Random Frequency Variation:	±0.5%
Radio Frequency Interference:	Optional PMG excitation operates in compliance with BS800 and VDE level G and N. Addition of RFI protection kit allows operation per MIL-STD- 461 and VDE level K

Engine Specifications

Design:	4 cycle, water-cooled
Bore:	4.02" (102mm)
Stroke:	4.72" (120 mm)
Displacement:	359 cubic inches (5.9 liters)
Cylinder Block:	Cast iron
Cranking Current:	460 amps at ambient temperature of 32°F (0°C)
Battery Charging Alternator:	37 amps
Starting Voltage:	12 volt, negative ground
Fuel System:	Direct injection, number 2 diesel fuel; fuel filter; water separator; automatic electric fuel shutoff
Air Cleaner Type:	Two stage element with restriction indicator
Lube Oil Filter Type(s):	Single spin-on, full flow
Cooling System:	104°F (40°C) ambient radiator

Alternator Specifications

Design:	Brushless, 1800 RPM (60 Hz), 1500 RPM (50 Hz), 4 pole, drip proof revolving field
Stator:	2/3 pitch
Rotor:	Direct coupled by flexible discs
Insulation System:	Class H per NEMA MG1-1.65
Temperature Rise:	150° C Standby
Exciter Type:	Shunt
Phase Rotation:	A (U), B (V), C (W)
Alternator Cooling:	Direct drive centrifugal blower
AC Waveform Total Harmonic Distortion:	<5% total no load to full linear load <3% for any single harmonic
Telephone Influence Factor(TIF):	<50 per NEMA MG1-22.43.
Telephone Harmonic Factor (THF):	<3

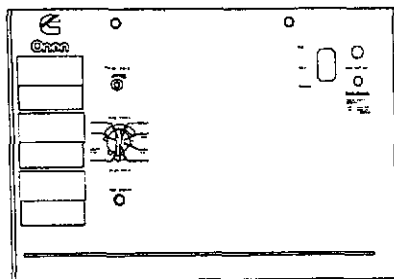
Voltage Selections

60Hz, 3-Phase, Reconnectable	60Hz, 1-Phase, Non-Reconnectable	60Hz, 3-Phase, Non-Reconnectable	50Hz, 3-Phase, Reconnectable	50Hz, 1-Phase, Non-Reconnectable
<input type="checkbox"/> 120/208 <input type="checkbox"/> 127/220 <input type="checkbox"/> 139/240 <input type="checkbox"/> 120/240 <input type="checkbox"/> 240/416 <input type="checkbox"/> 254/440 <input type="checkbox"/> 227/480	<input type="checkbox"/> 120/240	<input type="checkbox"/> 220/380 <input type="checkbox"/> 347/600	<input type="checkbox"/> 110/190 <input type="checkbox"/> 115/220 <input type="checkbox"/> 120/208 <input type="checkbox"/> 127/220 <input type="checkbox"/> 100/200 <input type="checkbox"/> 110/220 <input type="checkbox"/> 220/380	<input type="checkbox"/> 230/400 <input type="checkbox"/> 240/415 <input type="checkbox"/> 254/440 <input type="checkbox"/> 115/230 <input type="checkbox"/> 120/240

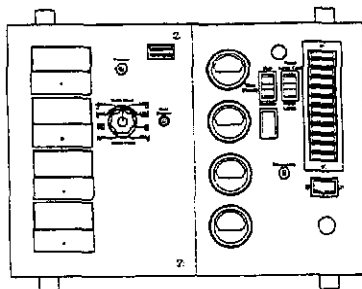
Generator Set Options

Engine <input type="checkbox"/> 120/240 Volt, 1500 watt coolant heaters <input type="checkbox"/> 120/240 Volt, 150 watt lube oil heater <input type="checkbox"/> Electronic governor Cooling System <input type="checkbox"/> 125°F/50°C ambient cooling <input type="checkbox"/> Remote radiator cooling Fuel System <input type="checkbox"/> 109 gal.(413 liter) dual wall sub-base tank <input type="checkbox"/> 173 gal.(655 liter) dual wall sub-base tank <input type="checkbox"/> 125 gal. (473 liter) single wall sub-base tank Alternator <input type="checkbox"/> 125°C rise alternator <input type="checkbox"/> 105°C rise alternator <input type="checkbox"/> Anti-condensation heater <input type="checkbox"/> Extended stack (full single phase output) <input type="checkbox"/> PMG excitation	Control Panel <input type="checkbox"/> Control anti-condensation heater <input type="checkbox"/> CSA 282 compliance package <input type="checkbox"/> Detector 12 control <input type="checkbox"/> Emergency stop <input type="checkbox"/> Engine gauges <input type="checkbox"/> Low battery voltage warning <input type="checkbox"/> Low coolant level warning/shutdown <input type="checkbox"/> PowerCommand Control <input type="checkbox"/> Remote fault signal package <input type="checkbox"/> Remote speed adjust Exhaust System <input type="checkbox"/> Genset mounted muffler <input type="checkbox"/> Heavy duty exhaust elbow <input type="checkbox"/> Slip on exhaust connection	Generator Set <input type="checkbox"/> AC entrance box <input type="checkbox"/> Batteries <input type="checkbox"/> Battery Charger <input type="checkbox"/> Export box packaging <input type="checkbox"/> Main line circuit breaker <input type="checkbox"/> PowerCommand Network <input type="checkbox"/> Quite Site Stage I housing w/silencer <input type="checkbox"/> Quite Site Stage II housing w/silencer <input type="checkbox"/> Remote annunciator panel <input type="checkbox"/> Spring isolators <input type="checkbox"/> Weather protective enclosure with silencer <input type="checkbox"/> 2 year prime power warranty* <input type="checkbox"/> 2 year standby warranty <input type="checkbox"/> 5 year basic power warranty
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* Available in North America Only



Optional Features Shown



Optional Features Shown

Sentinel Control System

- Automatic remote starting
- Control components designed to withstand the vibration levels typical in generator sets
- Controls generator set starting and shutdown

Standard Control Description

- Crank timer
- Fault reset button
- Remote starting, 12 volt, 2 wire
- Run-Off-Auto switch

Standard Features

- Field circuit breaker
- High temperature shutdown
- Low oil pressure shutdown
- Overcrank shutdown
- Overspeed shutdown
- Running time meter

Optional Features

- AC meter package (same as Detector)
- Oil pressure gauge (engine mounted)
- Water temperature gauge (radiator mounted)

Detector™ Control System

- Automatic remote starting
- Control components designed to withstand the vibration levels typical in generator sets
- Controls generator set starting and shutdown

Detector 12 Light (NFPA110) Control Description

- 12 light engine monitor (NFPA110 level)
- Common alarm contact
- Coolant temperature gauge
- Cycle cranking control
- DC voltmeter
- Field circuit breaker
- Individual 1/2 amp relay signals
- Lamp test switch
- Oil pressure gauge
- Remote starting, 12 volt, 2 wire
- Reset switch
- Run-Off-Auto switch
- Running time meter

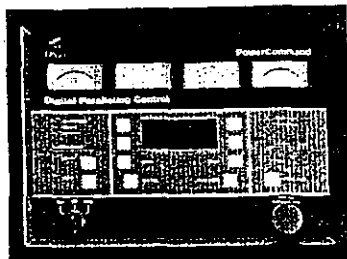
Standard Features

- 5% voltage adjust rheostat
- AC Ammeter (dual scale)
- AC Voltmeter (dual scale)
- Dual scale frequency/tachometer
- High coolant temp shutdown (red light)
- Low coolant temperature (yellow light)
- Low fuel (yellow light)
- Low oil pressure shutdown (red light)

- Overcrank shutdown (red light)
- Overspeed shutdown (red light)
- Pre-alarm high coolant temp (yellow light)
- Pre-alarm low oil pressure (yellow light)
- Run indicator (green light)
- Two customer selected faults (red light)
- Voltmeter/Ammeter phase selector

Optional Features

- Audible alarm
- CSA282
- Emergency stop
- Low battery voltage warning
- Remote fault signal package
- Speed adjust rheostat
- Time delay start/stop



Optional Features Shown

PowerCommand® Control with AmpSentry™ Protection

- AmpSentry Protection guards the electrical integrity of the alternator and power system from the effects of overcurrent, over/under voltage, under frequency and overload conditions
- Control components designed to withstand the vibration levels typical in generator sets
- Integrated automatic voltage regulator and engine speed governor

Standard Control Description

- Analog % of current meter (amps)
- Analog % of load meter (kW)
- Analog AC frequency meter
- Analog AC voltage meter
- Cycle cranking control
- Digital display panel
- Emergency stop switch
- Idle mode control
- Menu switch
- Panel backlighting
- Remote starting, 12 volt, 2 wire
- Reset switch
- Run-Off-Auto switch
- Sealed front panel, gasketed door
- Self diagnostics
- Separate customer interconnection box
- Voltmeter/Ammeter phase selector switch

Standard Protection Functions

- Warnings**
- High Coolant Temperature
 - High DC Voltage
 - Low Coolant Temperature
 - Low DC Voltage
 - Low Oil Pressure
 - Low Fuel - Day Tank
 - Over Current
 - Oil Pressure Sender Fault
 - Overload Load Shed Contacts
 - Temperature Sender Fault
 - Up to Four Customer Fault Inputs
 - Weak Battery

Shutdowns

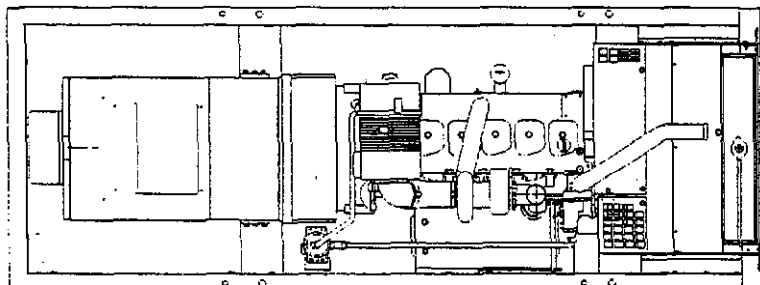
- Emergency Stop
- Fail to Crank
- High AC Voltage
- High Coolant Temperature
- Low AC Voltage
- Low Coolant Level (option for alarm only)
- Low Oil Pressure
- Magnetic Pickup Failure
- Overcrank
- Overcurrent
- Overspeed
- Short Circuit
- Underfrequency

Standard Performance Data

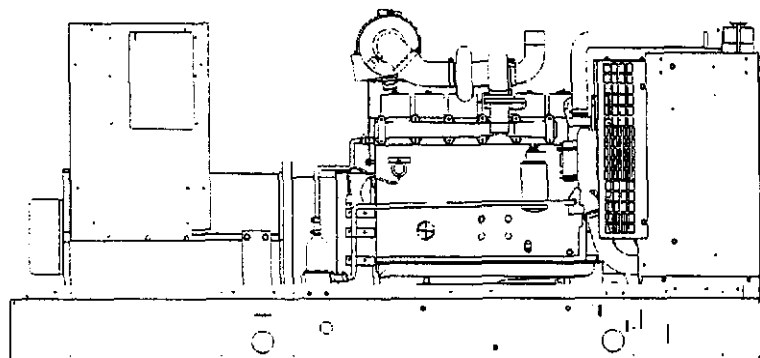
- AC Alternator Data**
- Current by Phase
 - Kilowatts
 - Kilowatt Hours
 - Power Factor
 - Voltage Line to Neutral
 - Voltage Line to Line
- Engine Data**
- Battery Voltage
 - Coolant Temperature
 - Engine Running Hours
 - Engine Starts Counter
 - Oil Pressure
 - Oil Temperature
 - RPM

Ratings Definitions

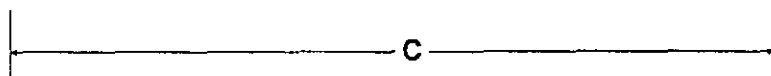
Standby:	Prime (Unlimited Running Time):	Base Load (Continuous):
Applicable for supplying emergency power for the duration of normal power interruption. No sustained overload capability is available for this rating. Nominally rated. (Equivalent to Fuel Stop Power in accordance with ISO3046, AS2789, DIN6271, and BS5514.)	Applicable for supplying power in lieu of commercially purchased power. Prime power is the maximum power available at a variable load for an unlimited number of hours. A 10% overload capability is available for limited time. Nominally rated. (Equivalent to Prime Power in accordance with ISO8528 and Overload Power in accordance with ISO3046, AS2789, DIN6271, and BS5514.)	Applicable for supplying power continuously to a load for this rating. Nominally rated. Consult authorized distributor for rating. (Equivalent to Continuous Power in accordance with ISO8528, ISO3046, AS2789, DIN6271, and BS5514.)



A



B



C

This outline drawing is to provide representative configuration details for the model series.

See respective model data sheet for specific model outline drawing number.

Do not use for installation design

Model	Dim "A"		Dim "B"		Dim "C"		Weight Wet	
DGDA	40 in	1016 mm	47.3 in	1202 mm	104.8 in	2662 mm	2650 lb.	1202 kg
DGDB	40 in	1016 mm	47.3 in	1202 mm	104.8 in	2662 mm	2650 lb.	1202 kg

See your distributor for more information.



Onan Corporation
1400 73rd Avenue N.E.
Minneapolis, MN 55432
612-574-5000
Fax: 612-574-8087

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Backfeed to a utility system can cause electrocution and/or property damage. Do not connect to any building's electrical system except through an approved device or after building main switch is opened.

Cummins is a registered trademark of Cummins Engine Company

ALTERNATOR DATA SHEET

Frame Size: UC3D

CHARACTERISTICS

WEIGHTS:	Wound Stator Assembly	265 lb	120 kg
	Rotor Assembly	317 lb	144 kg
	Complete Alternator	941 lb	427 kg

EXCITATION CURRENT: Full Load 2 Amps No Load 0.5 Amps

INSULATION SYSTEM: Class H Throughout **MAXIMUM SPEED:** 2250 rpm

1 Ø RATINGS (Based on specified temperature rise at 40°C ambient temperature)		(1.0 power factor)		60 Hz			50 Hz			
				Double Delta	4 Lead		Double Delta			
				<u>120/240</u>	<u>120/240</u>		<u>110-120</u> <u>220-240</u>			
125°C Rise Ratings		kW/kVA		79 / 79	90 / 90		68 / 68			
105°C Rise Ratings		kW/kVA		72 / 72	81 / 81		60 / 60			
3 Ø RATINGS (Based on specified temperature rise at 40°C ambient temperature)		(0.8 power factor)		Upper Broad Range	LBR*	347/600	Broad Range			
				<u>120/208</u> <u>240/416</u>	<u>139/240</u> <u>277/480</u>	<u>190-208</u> <u>380-416</u>		<u>110/190</u> <u>220/380</u>	<u>120/208</u> <u>240/416</u>	<u>127/220</u> <u>254/440</u>
150°C Rise Ratings		kW		110	124	110	124	97	97	92
		kVA		138	155	138	155	121	121	116
125°C Rise Ratings		kW		105	117	105	117	91	91	87
		kVA		131	146	131	146	114	114	109
105°C Rise Ratings		kW		96	105	96	105	80	80	74
		kVA		120	131	120	131	100	100	93
80°C Rise Ratings		kW		80	88	80	88	72	72	67
		kVA		100	110	100	110	90	90	84
3 Ø REACTANCES (Based on full load at 105°C Rise Rating)		(per unit, ±10%)								
Synchronous				2.53	2.08	2.00	1.82	2.11	1.77	1.46
Transient				0.21	0.17	0.16	0.16	0.18	0.15	0.12
Subtransient				0.14	0.12	0.12	0.12	0.13	0.11	0.09
Negative Sequence				0.17	0.14	0.14	0.14	0.14	0.11	0.09
Zero Sequence				0.10	0.08	0.08	0.08	0.08	0.07	0.06
3 Ø MOTOR STARTING										
Maximum kVA		(Shunt)		360	360	360		244		
(90% Sustained Voltage)		(PMG)		423	423	423		306		
TIME CONSTANTS		(Sec)								
Transient				0.030	0.030	0.030		0.030		
Subtransient				0.010	0.010	0.010		0.010		
Open circuit				0.820	0.820	0.820		0.820		
DC				0.007	0.007	0.007		0.007		
WINDINGS		(@ 20°C)								
Stator Resistance		(Line to Line, Ohms)		0.0900	0.0680	0.1250		0.0900		
Rotor Resistance		(Ohms)		1.2000	1.2000	1.2000		1.2000		
Number of Leads				12	12	6		12		

* Lower broad range 110/190 thru 120/208, 220/380 thru 240/416.



Measured Sound Performance

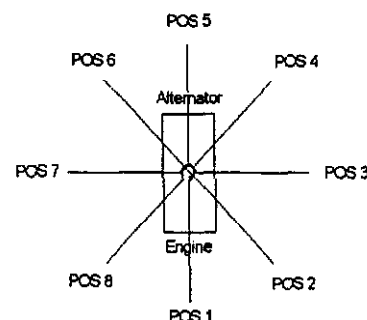
100DGDB 60 Hz

Measured Sound Pressure Levels dB(A)

Configuration		Position								8 Position Average
		1	2	3	4	5	6	7	8	
Standard - Unhoused (Note 3)	Infinite Exhaust	82.1	86.4	85.5	85.4	82.0	85.3	84.7	86.1	84.6
F182 - Weather (Note 3)	Infinite Exhaust	84.1	86.8	85.2	85.3	79.5	79.5	84.8	85.8	84.4
F182 - Weather	Mounted Muffler	85.3	87.9	85.9	85.6	80.8	85.3	86.1	87.5	85.6
F172 - Quiet Site II First Stage	Mounted Muffler	85.2	83.1	74.6	72.8	68.8	70.7	73.5	83.9	76.6
F173 - Quiet Site II Second Stage	Mounted Muffler	67.8	71.1	71.9	71.6	67.3	68.8	68.2	70.9	69.6

Note:

1. Measurement locations are 23 feet (7 m) from the center of the generator set.
2. Tests performed at full rated load with standard radiator-fan package.
3. Sound measurements for generator set with infinite exhaust do not include exhaust noise.
4. Tests conducted per ANSI S1.13-1971.
5. Reference sound pressure is 20 μ Pa.
6. The measured sound levels are subject to instrumentation, measurement, and generator set variability.



Measured Sound Power Levels dB(A)

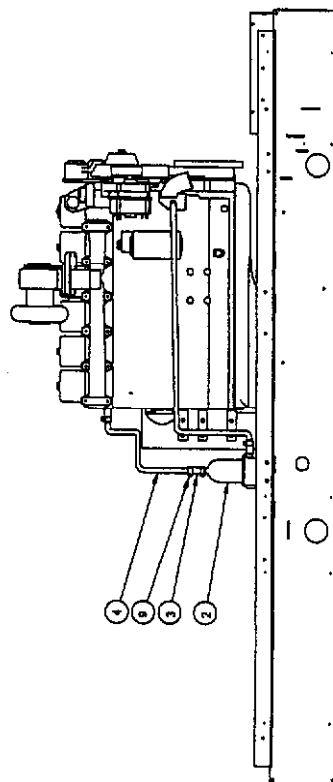
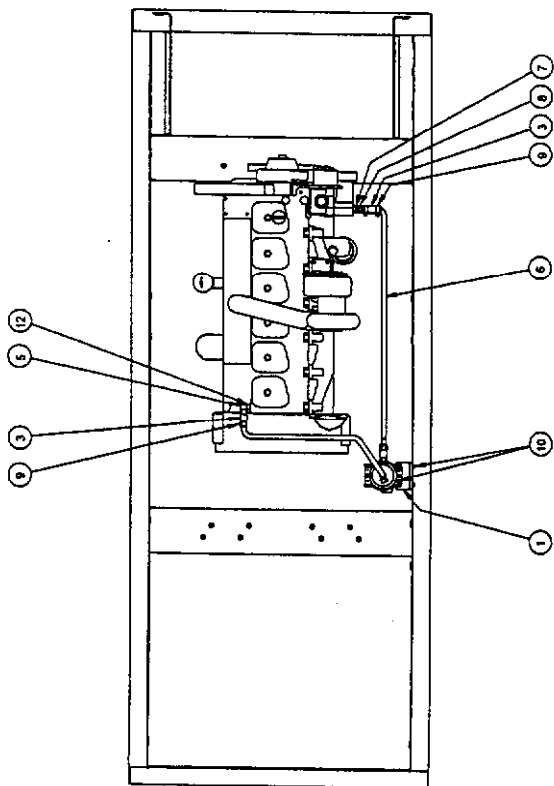
Configuration		Octave Band Center Frequency (Hz)								Sound Power Level
		63	125	250	500	1000	2000	4000	8000	
Standard - Unhoused (Note 3)	Infinite Exhaust	71.2	85.3	96.4	99.9	105.1	105.0	101.5	96.5	109.9
F182 - Weather	Mounted Muffler	87.7	99.5	99.7	103.9	106.9	106.7	102.3	97.9	112.1
F172 - Quiet Site II First Stage	Mounted Muffler	76.5	90.7	93.5	99.8	102.6	102.8	99.0	91.5	107.8
F173 - Quiet Site II Second Stage	Mounted Muffler	75.1	90.4	89.8	90.2	92.0	90.3	87.3	81.5	98.2

Note:

1. Tests performed at full rated load with standard radiator-fan package.
2. Tests conducted per ANSI S12.34-1988.
3. Sound measurements for generator set with infinite exhaust do not include exhaust noise.
4. Reference sound power is $1 \text{ pW} = 1 \times 10^{-12} \text{ W}$.
5. The measured sound levels are subject to instrumentation, measurement, and generator set variability.

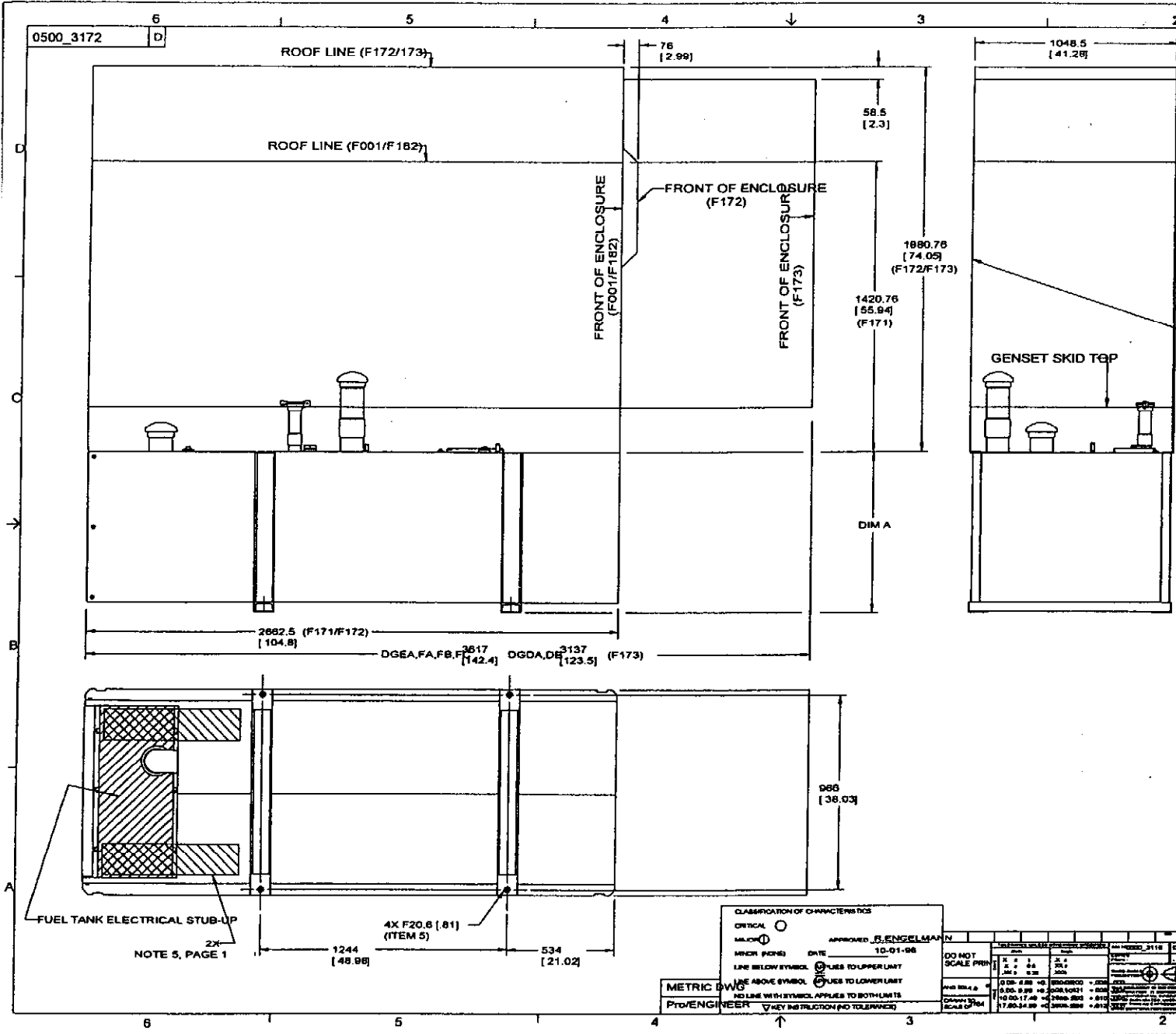
Page	Date	Time	Lat	Long	Alt	Wind	Temp	Humid	Clouds	Remarks
1	10/10/50	10:00	10:00	10:00	10:00	10:00	10:00	10:00	10:00	10:00
2	10/10/50	10:00	10:00	10:00	10:00	10:00	10:00	10:00	10:00	10:00
3	10/10/50	10:00	10:00	10:00	10:00	10:00	10:00	10:00	10:00	10:00
4	10/10/50	10:00	10:00	10:00	10:00	10:00	10:00	10:00	10:00	10:00
5	10/10/50	10:00	10:00	10:00	10:00	10:00	10:00	10:00	10:00	10:00
6	10/10/50	10:00	10:00	10:00	10:00	10:00	10:00	10:00	10:00	10:00
7	10/10/50	10:00	10:00	10:00	10:00	10:00	10:00	10:00	10:00	10:00
8	10/10/50	10:00	10:00	10:00	10:00	10:00	10:00	10:00	10:00	10:00
9	10/10/50	10:00	10:00	10:00	10:00	10:00	10:00	10:00	10:00	10:00
10	10/10/50	10:00	10:00	10:00	10:00	10:00	10:00	10:00	10:00	10:00
11	10/10/50	10:00	10:00	10:00	10:00	10:00	10:00	10:00	10:00	10:00
12	10/10/50	10:00	10:00	10:00	10:00	10:00	10:00	10:00	10:00	10:00
13	10/10/50	10:00	10:00	10:00	10:00	10:00	10:00	10:00	10:00	10:00
14	10/10/50	10:00	10:00	10:00	10:00	10:00	10:00	10:00	10:00	10:00
15	10/10/50	10:00	10:00	10:00	10:00	10:00	10:00	10:00	10:00	10:00
16	10/10/50	10:00	10:00	10:00	10:00	10:00	10:00	10:00	10:00	10:00
17	10/10/50	10:00	10:00	10:00	10:00	10:00	10:00	10:00	10:00	10:00
18	10/10/50	10:00	10:00	10:00	10:00	10:00	10:00	10:00	10:00	10:00
19	10/10/50	10:00	10:00	10:00	10:00	10:00	10:00	10:00	10:00	10:00
20	10/10/50	10:00	10:00	10:00	10:00	10:00	10:00	10:00	10:00	10:00
21	10/10/50	10:00	10:00	10:00	10:00	10:00	10:00	10:00	10:00	10:00
22	10/10/50	10:00	10:00	10:00	10:00	10:00	10:00	10:00	10:00	10:00
23	10/10/50	10:00	10:00	10:00	10:00	10:00	10:00	10:00	10:00	10:00
24	10/10/50	10:00	10:00	10:00	10:00	10:00	10:00	10:00	10:00	10:00
25	10/10/50	10:00	10:00	10:00	10:00	10:00	10:00	10:00	10:00	10:00
26	10/10/50	10:00	10:00	10:00	10:00	10:00	10:00	10:00	10:00	10:00
27	10/10/50	10:00	10:00	10:00	10:00	10:00	10:00	10:00	10:00	10:00
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31	10/10/50	10:00	10:00	10:00	10:00	10:00	10:00	10:00	10:00	10:00
32	10/10/50	10:00	10:00	10:00	10:00	10:00	10:00	10:00	10:00	10:00

NOTE:
1. USE SEALANT (ITEM 11), ON ALL PIPE THREADS.

[illegible][illegible]

METRIC DIMS. PROENGINEER

METRIC DIMS. PROENGINEER



REV	NO	DESCRIPTION	DATE	BY	CHKD
73652	A	1 PRODUCTION RELEASE	10-01-98	C. EDWARDS	10-01-98
73648	B	2 ADD LINES FOR F171, F172 & F173	11-20-98	C. EDWARDS	11-20-98
73718	C	2 REV PER ER	11-07-98	C. EDWARDS	11-07-98
74251	D	1 CHANGES PER ER	12-08-98	C. EDWARDS	12-08-98

CLASSIFICATION OF CHARACTERISTICS

CRITICAL ☐

MAJOR ☐

MINOR ☐

DATE 10-01-98

APPROVED J. ENGELMANN

LINE ABOVE SYMBOL ☐ LIES TO UPPER LIMIT

LINE BELOW SYMBOL ☐ LIES TO LOWER LIMIT

NO LINE WITH SYMBOL APPLIES TO BOTH LIMITS

METRIC DIMS

PTO/ENGINEER

REV	NO	DESCRIPTION	DATE	BY	CHKD
10-01-98	1	PRODUCTION RELEASE	10-01-98	C. EDWARDS	10-01-98
10-01-98	2	ADD LINES FOR F171, F172 & F173	11-20-98	C. EDWARDS	11-20-98
10-01-98	3	REV PER ER	11-07-98	C. EDWARDS	11-07-98
10-01-98	4	CHANGES PER ER	12-08-98	C. EDWARDS	12-08-98

MINNESOTA, MINNESOTA 55403

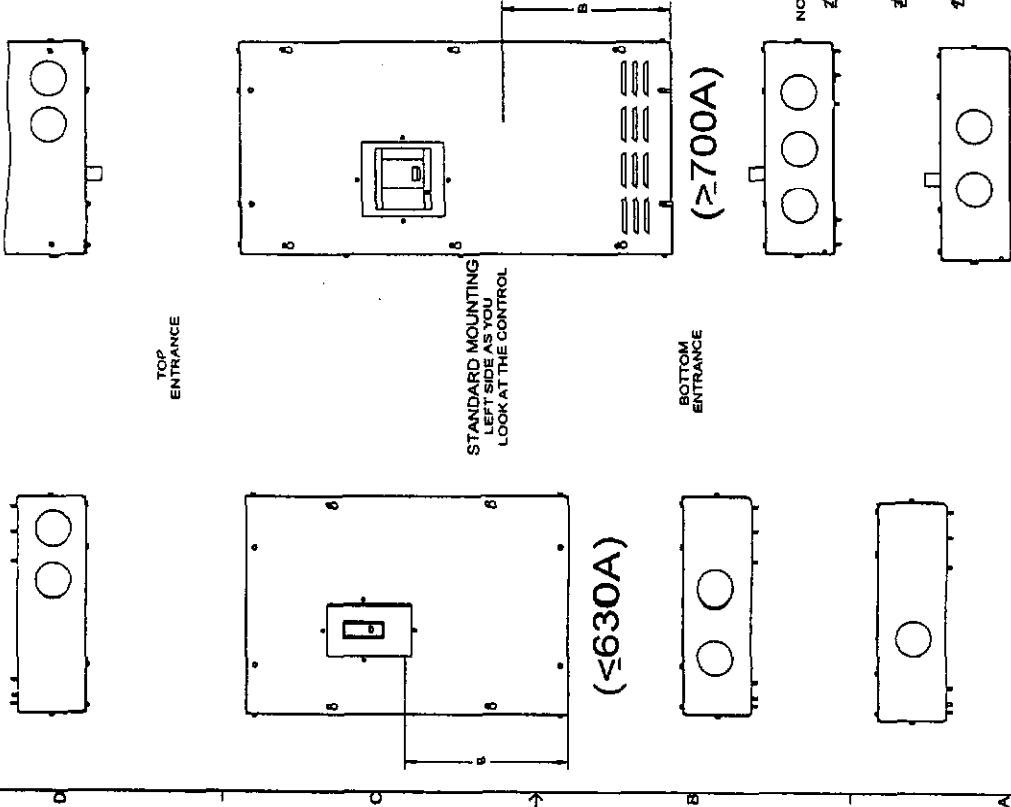
OUTLINE-FUEL TANK

0500_3172

2X D

0500 3278

RECOMMENDED LOCATIONS FOR ONE, TWO, OR THREE CONDUITS



NOTES:

1. THESE WIRE-CONDUIT COMBINATIONS MEET NEC AND CEC.

2. TO USE OTHER COMBINATIONS, REFER TO APPLICABLE

CODES TO ENSURE THAT WIRE AMPACITY, BEND SPACE

AND GUTTER SPACE MEET THE REQUIREMENTS.

3. THESE SHUNT TRIP UNITS CAN BE OPERATED AT 75% OF

NOMINAL VOLTAGE AND WILL ACCEPT MOMENTARY OR

CONTINUOUS APPLIED VOLTAGE.

4. 'NIST' SHUNT TRIP HAS NO INTERNAL CONTACTS, IT MUST BE

USED IN CONJUNCTION WITH AUXILIARY CONTACTS.

5. 'NIST' SHUNT TRIP WILL ACCEPT CONTINUOUS APPLIED VOLTAGE. IT CAN OPERATE

AT 75% OF NOMINAL VOLTAGE.

UL NEC LUGS			ACCESSORY SPECIFICATIONS		
LUG	FRAME	MAX AMPS	WIRE RANGE COPPER	ACCESSORY DESCRIPTION	CONNECTION TYPE
	NSF	15-60A	#14-10 AWG SOLID COND. ONLY	12 VDC SHUNT TRIP	10KA
		70-250A	2/0-250 KCMIL	1 EA. FORM C 1 AUX CONTACT 1 TRIP ALARM	
	NSJ	400A 3 OR 4 POLE	#2-600 KCMIL	12 VDC SHUNT TRIP	10KA
		600A 3-POLE 800A 4-POLE	2/0-350 KCMIL	1 EA. FORM C 1 AUX CONTACT 1 TRIP ALARM	
	CK	800A 3-POLE 1200A 4-POLE	3/0-500 KCMIL	12 VDC SHUNT TRIP	3.8KA
		1250A 4-POLE	3/0-500 KCMIL	1 EA. FORM C 1 AUX CONTACT 1 TRIP ALARM	
	KDL	250A	#3-250 KCMIL	12 VDC SHUNT TRIP	NONE AVAILABLE
		400A	#1-600 KCMIL	12 VDC SHUNT TRIP	
	Q4	240V	315 (12.4)	12 VDC SHUNT TRIP	NONE AVAILABLE
		240V	315 (12.4)	12 VDC SHUNT TRIP	

COMPRESSION TERMINALS #20-18 AWG OR SMALLER TORQUE: 10 LB-IN

COMPRESSION TERMINALS #20-18 AWG OR SMALLER TORQUE: 10 LB-IN

COMPRESSION TERMINALS #20-18 AWG OR SMALLER TORQUE: 10 LB-IN

COMPRESSION TERMINALS #20-18 AWG OR SMALLER TORQUE: 10 LB-IN

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COMPRESSION TERMINALS #20-18 AWG OR SMALLER TORQUE: 10 LB-IN

COMPRESSION TERMINALS #20-18 AWG OR SMALLER TORQUE: 10 LB-IN

TYPICAL CONDUIT AND WIRE SIZE BASED ON NEC TABLE 310-16 AT 25°C		
MAX BRKR AMPS	WIRE (COPPER)	CONDUIT
630A	2 300 KCMIL	3"
400A	1 600 KCMIL	3 1/2"
250A	1 250 KCMIL	3"
100A	1 100 KCMIL	1 1/2"

TYPICAL CONDUIT AND WIRE SIZE BASED ON NEC TABLE 310-16 AT 25°C		
MAX BRKR AMPS	WIRE (COPPER)	CONDUIT
630A	2 300 KCMIL	3"
400A	1 600 KCMIL	3 1/2"
250A	1 250 KCMIL	3"
100A	1 100 KCMIL	1 1/2"

0500 3278

DATE: 08-17-98

BY: G. COLLEEN

REVISION: 08-15-98

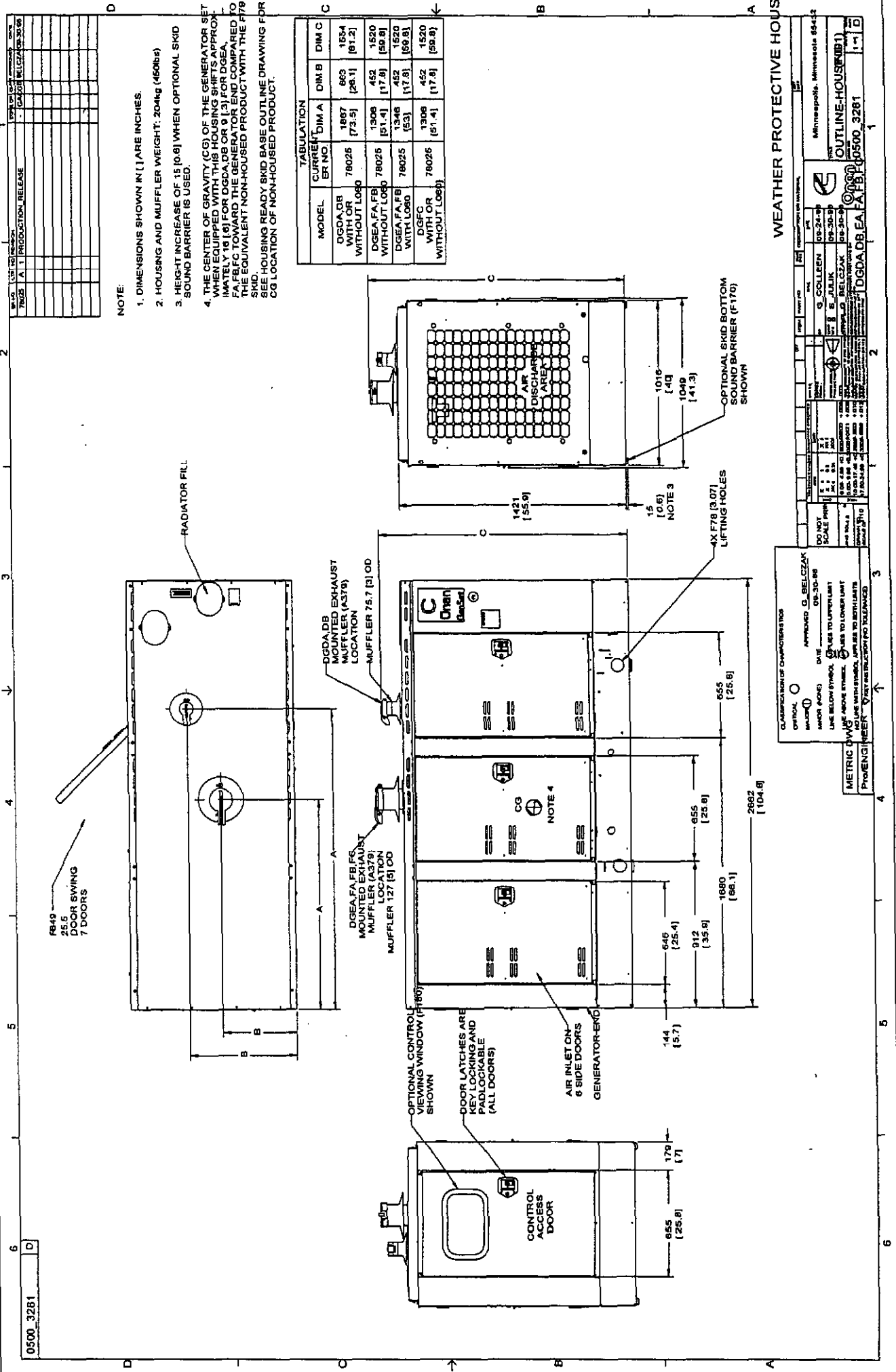
DESIGN: 08-15-98

PROJECT: 0500 3278

OUTLINE-CKT BRKR

0500 3278

2-20



WEATHER PROTECTIVE HOUSE

MINNESOTA 85412

OUTLINE-HOUSE (DB1)

0500_3281

DATE: 08-24-98

DESIGNED BY: J. BELCZAK

CHECKED BY: J. BELCZAK

APPROVED BY: J. BELCZAK

DATE: 08-30-98

CLASSIFICATION OF CHARACTERISTICS

OPTIONAL: 0 BELCZAK

MAJOR: 08-30-98

DATE: 08-30-98

LINE BELOW SYMBOL: 08-30-98

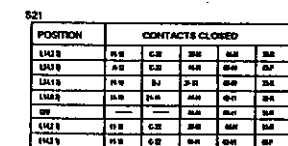
LINE ABOVE SYMBOL: 08-30-98

DO NOT SCALE FROM THIS DRAWING

METRIC DIMENSIONS: 0500_3281

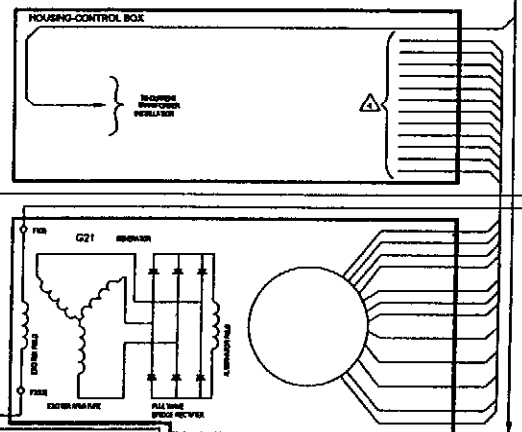
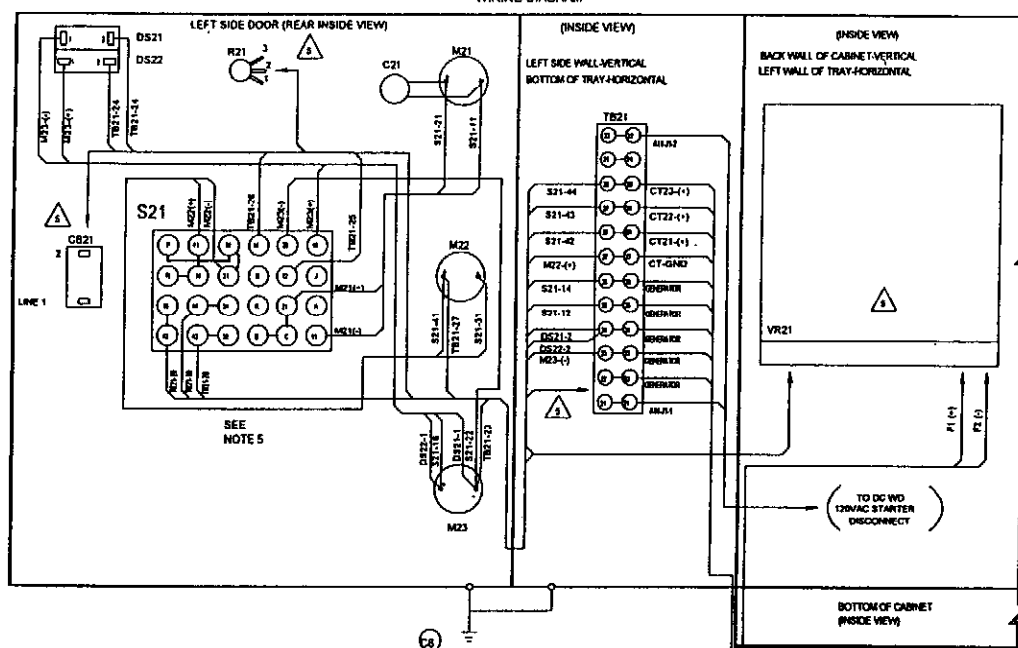
PROJENGI: 0500_3281

SCHEMATIC DIAGRAM



TABULATION	
DESIGNATION	WIRE COLOR
C120 0	PURPLE
C120 1	PURPLE
C120 1	PURPLE
OT COMMON	PURPLE
C120 4	LT ORANGE
OT 1	PURPLE
OT 1	PURPLE
OT 7	PURPLE
OT 8	ORANGE

WIRING DIAGRAM



CLASSIFICATION OF CHARACTERISTICS

REPLACEMENT AND MAINTENANCE

ОБЩЕД

WACH 1

INDEX, PAGES

THE INFORMATION REPORT

LOW ARCHIVE STORAGE AFFLICTS 80-10


HOUSE WITH PORCH APPLIES TO:

1

REVISION DATE:

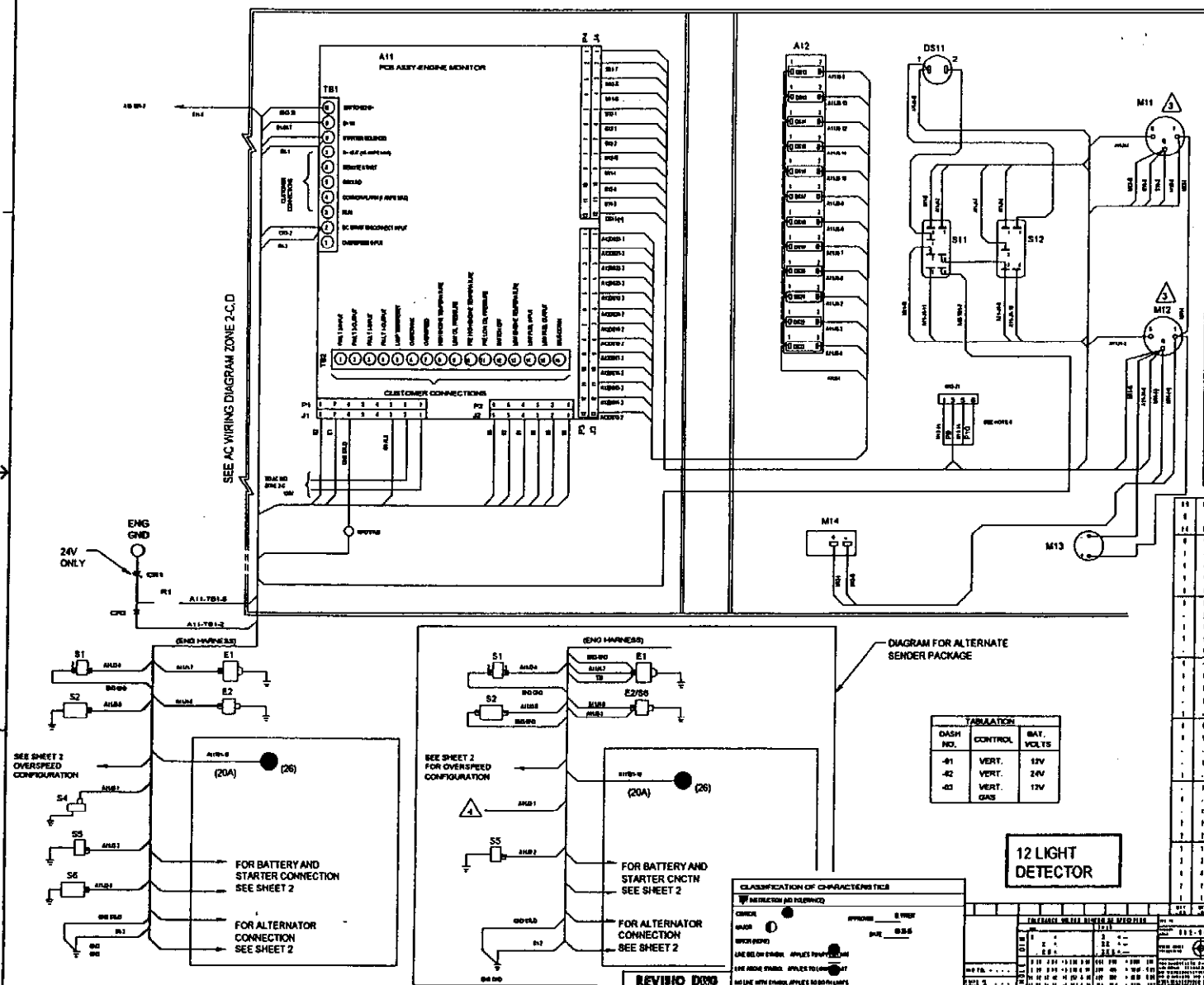
[illegible]

1700	PAGE TWO	DE WASH DC 11 APR 68
TO	ALL	ONE
V. BECKMAN		10-10-95
D. YOUNG		10-10-95
O. PINEH		(0-10-95)

	WD-GEN SET AC
	0512-6694

WD-GEN SET AC CONT
0612-6694 2-2

0612-669

RIGHT SIDE WALL-HORIZONTAL
BACK WALL-VERTICALRIGHT SIDE DOOR
(REAR INSIDE VIEW)

NOTES:

1. ALL COMPONENTS SHOWN IN DE-ENERGIZED POSITION.
2. ILLUSTRATION NUMBERS REFER TO DWG. NO. 538-0741.
3. GAUGE RESISTORS R12, R13 (ILLUS 888) ARE USED ON 24V (-07) VERSION ONLY. MOUNT BEFORE ATTACHING HARNESS.
4. THE ALL UNUSED LEADS INTO HARNESS.
5. DASHED LEADS INDICATE WHEN USED.
6. M12-J1 USED FOR SPARK WANTED PRODUCT.
7. WATER TEMPERATURE GAUGE IS WIRED TO F3 FOR CONTINUOUS OPERATION FOR SPARK WANTED PRODUCT.

NO.	DESCRIPTION	WIRING
01	FUEL SOLINOID	
02	ALTERNATOR	
03	WATER TEMP	
04	BATTERY-STARTER	
05	STARTER SOLINOID	
06	WATER TEMP	
07	WATER TEMP	
08	WATER TEMP	
09	WATER TEMP	
10	WATER TEMP	
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NO.	DESCRIPTION	WIRING
01	FUEL SOLINOID	
02	ALTERNATOR	
03	WATER TEMP	
04	BATTERY-STARTER	
05	STARTER SOLINOID	
06	WATER TEMP	
07	WATER TEMP	
08	WATER TEMP	
09	WATER TEMP	
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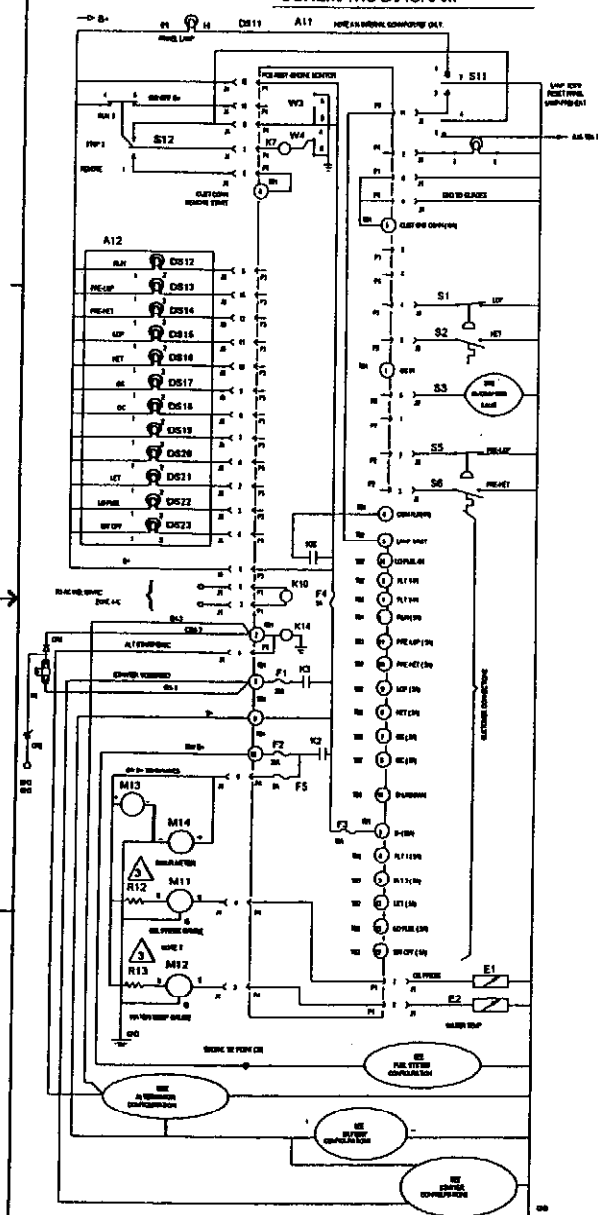
DASH NO.	CONTROL	BAT. VOLTS
-01	VERT.	12V
-02	VERT.	24V
-03	VERT.	12V

12 LIGHT DETECTOR

CLASSIFICATION OF CHARACTERISTICS	DESCRIPTION
01	01000000
02	01000000
03	01000000
04	01000000
05	01000000
06	01000000
07	01000000
08	01000000
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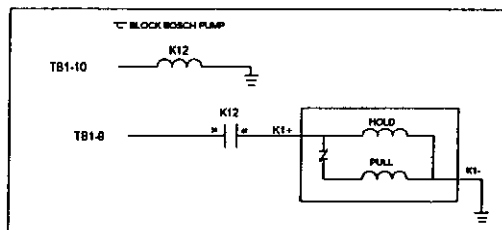
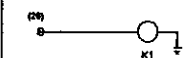
0612-6692

SCHEMATIC DIAGRAM

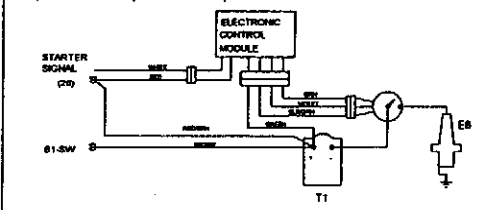


IGNITION FUEL SYSTEMS CONFIGURATIONS

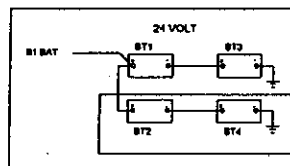
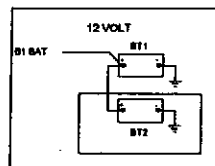
DIESEL AND GAS APPLICATIONS



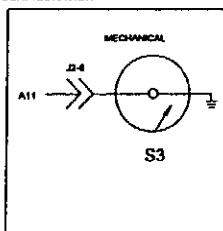
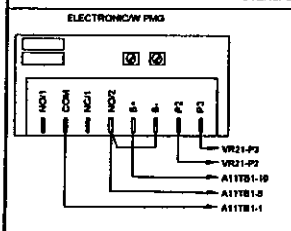
FORD APPLICATIONS (SPARK IGNITION)



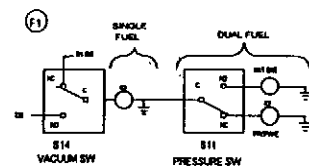
BATTERY CONFIGURATIONS



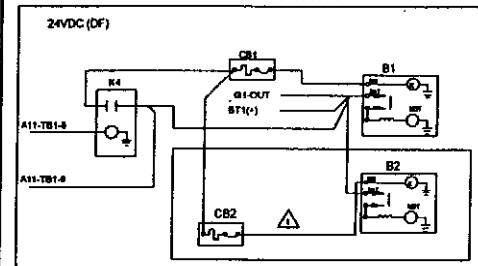
OVERSPEED CONFIGURATION



GAS APPLICATION WITH OPTIONS

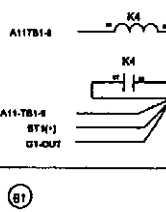


STARTER CONFIGURATIONS

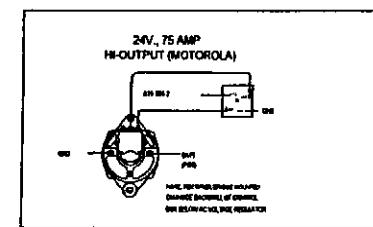
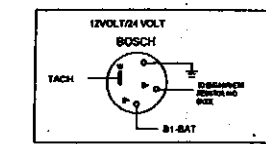
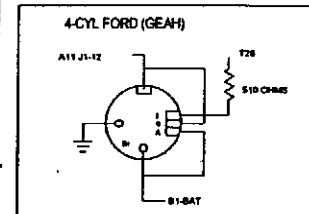


SOLENOID SHIFT "B" BLOCK

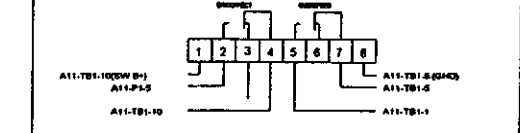
12VDC/4VDC



ALTERNATOR CONFIGURATIONS



ELECTRONIC OVERSPEED NON PMG



REVISED DOW

NO.	DESCRIPTION	DATE	BY
1	REVISION	10/1/80	V. BECHMAN
2	REVISION	10/1/80	D. YOUNG
3	REVISION	10/1/80	D. YOUNG

NO.	DESCRIPTION	DATE	BY
1	REVISION	10/1/80	V. BECHMAN
2	REVISION	10/1/80	D. YOUNG
3	REVISION	10/1/80	D. YOUNG

NO.	DESCRIPTION	DATE	BY
1	REVISION	10/1/80	V. BECHMAN
2	REVISION	10/1/80	D. YOUNG
3	REVISION	10/1/80	D. YOUNG

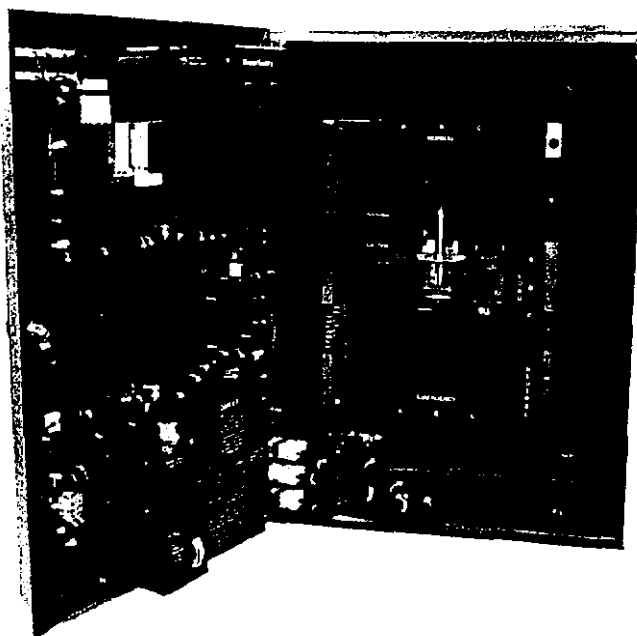
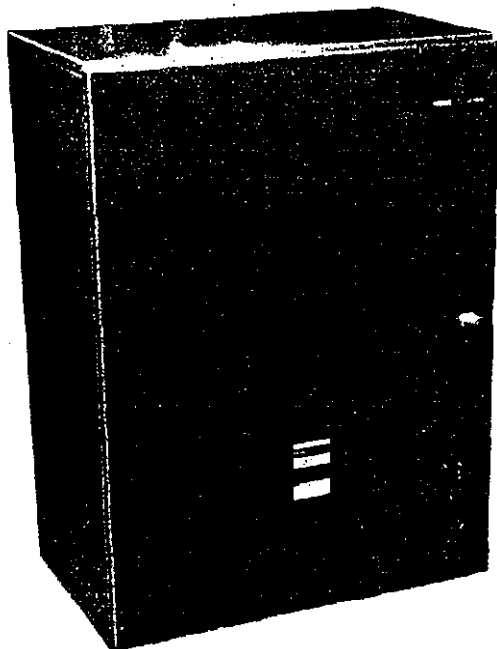
2692-7190

0612-6692



OT III™ Automatic Transfer Switch

40 to 3000 Amperes 3 Pole or 4 Pole



Application Flexibility

- Automatic
- Remote
- Manual Transfer and Retransfer

OT III™ Automatic Transfer Switches transfer loads between utility and generator set, utility and utility, or generator set and generator set. Available in 3- or 4-pole/switched neutral models.

The OT III non-automatic transfer switch offers flexibility when remote controlled or when manual transfer or retransfer of load is required for non-emergency applications.

Power Sentry Electronic Control

Reliable electronic control with system surge voltage isolation, all phase monitoring on each power source; four standard time delays and diagnostic LED's.

- Optical isolation on all logic inputs.
- Relays used on all outputs.
- High isolation transformers for AC power inputs.
- LED lamps verify control status.
- Field adjustable voltage sensors and time delays.

Linear Operator

Provides simple, reliable, positive, fast acting electric transfer during automatic operation.

Positive Interlocking

Mechanical and electrical interlocking to prevent source-to-source connection through the power or control wiring.

Main Contacts

Heavy duty silver alloy contacts with separate arcing surfaces and multileaf arc chutes. Rated for total system transfer including overload interruption. Contacts are rated for 100% continuous current duty in either open or enclosed construction. High pressure contact design withstands high fault currents without interruption.

Assembly Features

UL listed cabinets. Plug connections between switch and control to facilitate service. UL listed CU-AL terminals. Door mounted controls provide easy access for adjustments and service. Ample space for field power and control connections. Terminal markings compatible with generator set.

Agency Approvals

Listed to UL 1008. All accessories are UL listed for factory or field installation. Complies with NEMA ICS 2-447, and conforms to applicable requirements for NFPA 70, 99 and 110. CSA certified up to 600 VAC.

Manual Operation

Permanently attached manual operating handles, shielded termination, and over-center type contact mechanisms allow safe, manual operation under load (40 - 1000A switches).

Automatic Transfer Switch Applications

Utility to Generator Set

Control monitors utility and emergency standby generator set power. When utility power fails or is unsatisfactory, the switch starts the generator set and transfers critical loads to the generator set. The switch automatically transfers loads back to the utility when the utility power returns.

Utility to Utility

Control monitors the primary utility source and transfers the critical load to a secondary utility source when the primary power fails or is unsatisfactory. The switch automatically transfers loads back to the primary source when power is restored.

Generator Set to Generator Set

Used in applications where multiple generator sets supply power to the load with no utility. The transfer switch is used to automatically control the generator sets, allowing one generator set to power the load with the other generator set as standby. The running (lead) unit can be selected manually or may be changed automatically with the optional changeover clock.

Transfer Switch Mechanism

Advanced Transfer Switch Design:

A bi-directional linear actuator powers all OT III Transfer Switches. This design provides virtually friction-free, constant force, straight-line switch action.

Transfer Action:

Independent break-before-make action is used for both 3- and 4- pole/switched neutral switches. The action positively prevents dangerous source to source connections. On 4-pole/switched neutral switches, this action also prevents the objectionable ground currents and nuisance ground fault tripping that can result from over-lapping designs.

Mechanical Interlock:

Prevents simultaneous closing of normal and emergency contacts.

Electrical Interlocks:

Prevents simultaneous closing signals to normal and emergency contacts and interconnection of normal and emergency sources through the control wiring.

Main Contacts:

Long life, high pressure, silver alloy contacts resist burning and pitting. Separate arcing surfaces further protect the main contacts. Contacts are mechanically held in both normal and emergency positions for reliable, quiet operation.

Voltage Rating:

Transfer switches rated from 40 amps through 3000 amps are rated at 600 VAC.

Arc Interruption:

Multiple leaf arc chutes cool and quench the arcs. Covers prevent interphase flashover and are transparent for visual inspection.

Neutral Bar:

A full current-rated neutral bar with lugs is standard on 3-pole transfer switches supplied with cabinet.

Auxiliary Contacts:

Two contacts (one for each source) provided for customer use. Wired to terminal block for easy access. Rated at 10A continuous and 250 VAC maximum.



Environmental Limits:

Operating temperature: -40° F (-40° C) to 122° F (50° C)

Storage temperature: -40° F (-40° C) to 140° F (60° C)

Humidity: Up to 95% relative, noncondensing

Altitude: Up to 10,000 feet (3,000 m) without derating

Surge Withstand Ratings:

Guidelines for locations. Surge test waveforms for location category B3, per IEEE C 62.41. Testing per guidelines in IEEE C 62.45.

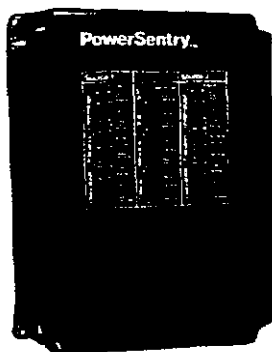
Total Transfer Time (source-to-source):

Will not exceed 6 cycles at 60 Hz with nominal voltage applied to the actuator and without programmed transition installed.

Manual Handles:

Transfer switches rated through 1000 amperes are equipped with permanently attached operating handles and quick-break, quick-make contact mechanisms suitable for manual operation under load. Transfer switches over 1000 amperes are equipped with manual operators for service use only under de-energized conditions.

Power Sentry® Automatic Electronic Control



Adjustable Voltage Sensors

Pickup: 85% to 98% of nominal voltage.

Dropout: 75% to 98% of pickup setting.

Dropout Time Delay: 0.5 seconds fixed.

Adjustable Solid State Time Delays

Time delays enhance system performance and versatility.

<u>Delay</u>	<u>Adjustment</u>
Start	0 to 15 seconds
Transfer	2 to 120 seconds
Retransfer	0 to 30 minutes
Stop	0 to 10 minutes

Time Delay Functions

Start - Prevents nuisance generator set starts in the event of momentary power system variation or loss (Not included in utility to utility systems.)

Transfer - Allows generator set to stabilize before application of load. Prevents needless power interruption if normal source variation or loss is momentary. Allows staggered transfer of loads in multiple transfer switch systems.

Retransfer - Allows the utility to stabilize before retransfer of load. Prevents needless power interruption if return of normal source is momentary. Allows staggered transfer of loads in multiple transfer switch systems.

Stop - Maintains availability of generator set for immediate reconnection in the event that the normal source fails shortly after retransfer. Allows gradual generator set cool-down by running unloaded. (Not included in utility to utility systems.)

Control Mode Status Indicators

These indicators allow the operator to verify that the controls are functioning normally and assist in determining the nature of any malfunctions that may occur.

LED lamps on the control panel indicate these conditions:

- Source 1 OK
- Source 2 OK
- Generator Set Start Signal
- Transfer Timing
- Transfer Complete
- Retransfer Timing
- Retransfer Complete
- Timing for Stop

Enclosure

The transfer switch and Power Sentry control are mounted in a single-door enclosure.

- Key Locking Cabinet. UL Listed.
- Includes Normal (Source 1)/Emergency (Source 2) transfer switch position and source available lamps.
- Wire bend space complies with 1993 NEC., Table 373-6b

Utility to Generator Set Model

- Includes key operated Test/Normal/Retransfer switch. Retransfer position provides immediate retransfer to normal, bypassing time delay.

Type

- UL Type 1, 3R, 4, 12: 40-3000 amps

Utility to Utility Model

- Includes key operated Source 1/Source 2 switch to select the preferred utility service.

Generator Set to Generator Set Model

- Includes key operated Source 1/Auto/Source 2 switch to select the lead generator set or to enable an automatic weekly changeover.

Non-Automatic Model

- Includes key operated Local/Remote Switch

Color

- 40-1200 Amps: Onan Green
- 1600-3000 Amps: Switchgear Grey

UL Withstand and Closing Ratings*

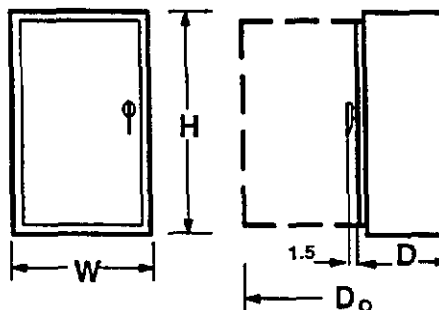
When protected by circuit breakers or fuses of the size and type listed below, the withstand and closing ratings are as stated in symmetrical RMS amperes.

Transfer Switch Ampere	FUSE PROTECTION		MCCB PROTECTION		CLB PROTECTION	
	WCR @ Volts Max with Current limiting Fuses	Max Fuse, Size and Type	WCR @ Volts Max with Specific Manufacturers MCCBs*	Max MCCB Rating	With Specific Current Limiting Breakers (CLB)**	Max CLB Rating
40-125 A	200,000 A (480 VAC) 200,000 A (600 VAC)	200A Class J, RK1, RK5	14,000 A (480 VAC) 14,000 A (600 VAC)	225 A	200,000 A (480 VAC) 100,000 A (600 VAC)	225 A
150-260 A	200,000 A (480 VAC) 200,000 A (600 VAC)	600 A Class J, RK1, or RK5 1200 A Class L	30,000 A (480 VAC) 30,000 A (600 VAC)	400 A	200,000 A (480 VAC) 100,000 A (600 VAC)	400 A
300-600 A	200,000 A (480 VAC) 200,000 A (600 VAC)	1200 A Class L	65,000 A (480 VAC) 65,000 A (600 VAC)	1200 A	200,000 A (480 VAC) 100,000 A (600 VAC)	1200 A
800-1000 A	200,000 A (480 VAC) 200,000 A (600 VAC)	2000 A Class L	65,000 A (480 VAC)	1400 A	150,000 A (480 VAC) 100,000 A (600 VAC)	1400 A
1200 A	200,000 A (480 VAC) 150,000 A (600 VAC)	3000 Class L	85,000 A (480 VAC) 65,000 A (600 VAC)	1600 A	85,000 A (480 VAC) 65,000 A (600 VAC)	1600 A
1600-2000 A	200,000 A (480 VAC) 150,000 A (600 VAC)	2500 A Class L	100,000 A (480 VAC) 85,000 A (600 VAC)	4000 A	100,000 A (480 VAC) 85,000 A (600 VAC)	4000 A
3000 A	200,000 A (480 VAC) 150,000 A (600 VAC)	4000 A Class L	100,000 A (480 VAC) 85,000 A (600 VAC)	4000 A	100,000 A (480 VAC) 85,000 A (600 VAC)	4000 A

*Please refer to Onan Publication R-1029 for a complete listing of Ratings and Breaker selections.

**Ratings vary with breaker type. Please refer to Onan Publication R-1029 for a complete listing.

Dimensions*



Transfer Switch in U.L. Type 1 Enclosure

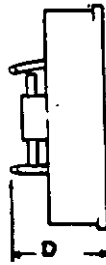
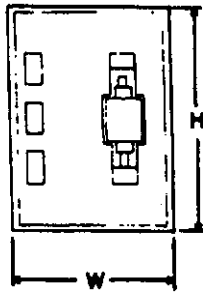
Amp Rating	Height in. (mm)	Width in. (mm)	Depth		Weight Lb. (kg)	Outline Drawing No.
			Door Closed in. (mm)	Door Open in. (mm)		
40, 70, 125	27 (660)	20.5 (520)	12 (305)	31.5 (800)	82 (37)	310-0544
150, 225	35.5 (900)	26 (660)	16 (405)	41 (1042)	165 (75)	310-0414
260	43.5 (1105)	28.5 (725)	16 (405)	43 (1093)	170 (77)	310-0540
300, 400, 600	54 (1370)	25.5 (650)	16.5 (420)	40.5 (1029)	225 (102)	310-0416
800, 1000	68 (1730)	30 (760)	19.5 (495)	48.5 (1232)	360 (163)	310-0417
1200	75 (1905)	36 (915)	19.5 (500)	54 (1372)	450 (204)	310-0482
1600, 2000*	90 (2290)	36 (915)	48 (1220)	84* (2135)	900 (408)	310-0483
3000*	90 (2290)	36 (915)	48 (1220)	84* (2135)	1100 (499)	310-0484

* Rear or side access is required to complete power wiring installation.

Transfer Switch in U.L. Type 3R, 4, or 12 Enclosure

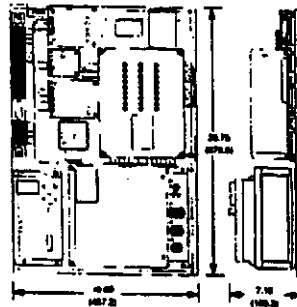
Amp Rating	Height in. (mm)	Width in. (mm)	Depth		Weight Lb. (kg)	Cabinet Type	Outline Drawing NO.
			Door Closed in. (mm)	Door Open in. (mm)			
40, 70, 125	34 (865)	26.5 (675)	12.5 (320)	36.5 (927)	125 (57)	3R, 12	310-0453
						4	310-0445
150, 225	42.5 (1080)	30.5 (775)	16.0 (406)	44 (1118)	215 (97)	3R, 12	310-0454
						4	310-0446
260	46 (1170)	32 (815)	16.0 (406)	46 (1168)	255 (102)	3R, 12	310-0455
						4	310-0447
300, 400, 600	59 (1500)	27.5 (700)	16.5 (420)	41.5 (1054)	275 (125)	3R, 12	310-0456
						4	310-0448
800, 1000	73.5 (1865)	32.5 (825)	19.5 (495)	49.5 (1257)	410 (186)	3R, 12	310-0457
						4	310-0449
1200	75 (1905)	36 (915)	19.5 (500)	55 (1397)	450 (204)	3R, 12	310-0482
						4	310-0482

Power Transfer Switch



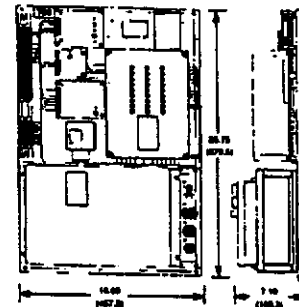
All Model Sizes

Control



40 Amp - 1000 Amp Approx. Weight 36 lbs (16kg)

Control



1200 Amp-3000 Amp Approx. Weight 32 lbs (14kg)

3-Pole Open Transfer Switch

Amp Rating	Height in. (mm)	Width in. (mm)	Depth in. (mm)	Weight** lb. (kg)	Outline Drawing No.
40, 70, 125	16.5 (419)	12 (305)	8 (205)	20 (9)	310-0692
150, 225, 260	22.5 (570)	19 (485)	12 (305)	50 (23)	310-0692
300, 400, 600	28 (710)	19 (485)	15 (380)	80 (37)	310-0692
800, 1000	37.5 (955)	22.5 (570)	17 (430)	150 (68)	310-0692
1200	35.5 (900)	22 (560)	12 (305)	275 (127)	310-0694
1600, 2000	37 (940)	25 (635)	19 (485)	620 (285)	310-0695
3000	37 (940)	25 (635)	21 (535)	700 (322)	310-0695

4-Pole Open Transfer Switch

Amp Rating	Height in. (mm)	Width in. (mm)	Depth in. (mm)	Weight** lb. (kg)	Outline Drawing No.
40, 70, 125	16.5 (419)	NA	8 (205)	20 (9)	NA
150, 225, 260	22.5 (570)	19 (485)	12 (305)	50 (23)	310-0693
300, 400, 600	28 (710)	19 (485)	15 (380)	80 (37)	310-0693
800, 1000	37.5 (955)	22.5 (570)	17 (430)	150 (68)	310-0693
1200	35.5 (900)	27.5 (700)	12 (305)	275 (127)	310-0696
1600, 2000	37 (940)	30.5 (775)	19 (485)	620 (285)	310-0697
3000	37 (940)	30.5 (775)	21 (535)	700 (322)	310-0697

* Approximate dimensions only. For exact construction details, obtain outline drawing listed in table from your distributor. ** Approximate weight only.

Transfer Switch Lug Capacities - All lugs accept copper or aluminum wire unless indicated otherwise.

Amp Rating	Cables Per Phase	
	Qty.	Size
40, 70, 125	1	12-2/0
150, 225,	1	#6 AWG - 300 MCM
260	1	#6 AWG - 400 MCM
300, 400	1	3/0-600 MCM
	or 2	3/0-250 MCM
600	2	
800,	4	250 - 500 MCM
1000	4	
1200	4	600 MCM to #2 AWG
1600, 2000	8	600 MCM to #2 AWG (lugs optional)
3000	8	600 MCM to #2 AWG (lugs optional)

Caution: Do not run control wiring through power cable conduit or raceway.

Submittal Detail

Automatic Transfer Switch Options

Current Ratings

- ☐ S046 40 Amps
- ☐ S047 70 Amps
- ☐ S048 125 Amps
- ☐ S049 150 Amps
- ☐ S050 225 Amps
- ☐ S051 260 Amps
- ☐ S052 300 Amps
- ☐ S053 400 Amps
- ☐ S054 600 Amps
- ☐ S055 800 Amps
- ☐ S056 1000 Amps
- ☐ S057 1200 Amps
- ☐ S058 1600 Amps
- ☐ S059 2000 Amps
- ☐ S060 3000 Amps

Voltage (Line-Line) Ratings

- ☐ R020 120 Volts (*)
- ☐ R021 208 Volts
- ☐ R022 220 Volts
- ☐ R023 240 Volts
- ☐ R024 380 Volts
- ☐ R025 416 Volts
- ☐ R026 480 Volts
- ☐ R027 600 Volts

(*) Line to Neutral Voltage (not available on 1200-3000 amp switches)

Pole Configuration

- ☐ A028 Poles - 3 (Solid Neutral)
- ☐ A029 Poles - 4 (Switched Neutral - not available 40-125 amps)

Frequency

- ☐ A044 60 Hertz
- ☐ A045 50 Hertz

Application

- ☐ A035 Appl - Utility to Genset
- ☐ A036 Appl - Utility to Utility
- ☐ A037 Appl - Genset to Genset
- ☐ A038 Non Automatic/Remote

System Options

- ☐ A041 Single phase, 2-wire or 3-wire (not available 1200 - 3000 amps)
- ☐ A042 Three phase, 3-wire or 4-wire

Enclosure

- ☐ B001 Type 1: General Purpose Indoor (similar to IEC type IP30)
- ☐ B002 Type 3R: Intended for outdoor use (dustproof and rainproof). (Available 40-3000 amps only) (similar to IEC type IP34)
- ☐ B003 Type 4: Indoor or outdoor use (waterlight). (Available 40-3000 amps only) (similar to IEC type IP65)
- ☐ B004 Open Construction: No enclosure - Includes Automatic Transfer Switch and Controls. Also supplied are source connected/available lamps and selector switch to be wired by customer.
- ☐ B010 Type 12: Indoor use, dust-tight and drip-tight (similar to IEC type IP61)

Listing

- ☐ A046 Listing - UL 1008
- ☐ A047 Certification - CSA
- ☐ A048 Listing - Not Applicable
- ☐ A064 Listing - NFPA 20 (not available 1200-3000A)

Meter Package

- ☐ D001 Meters - None
- ☐ D002 Meters - Door Mounted
- Voltmeter - 2.5" (63.5 mm), 2% accuracy
- Ammeter - 2.5" (63.5 mm), 2% accuracy
- Frequency Meter - 2.5" (63.5 mm), pointer type
- Phase Selector switch - Phase-to-phase voltage sensing on both normal and emergency sources.

Shipping Configuration

- ☐ A050 Packing - Wooden Crate
- ☐ A051 Packing - Export Box

Options and Accessories

Controls

- ☐ C015 Start Time Delay (90 sec)
- ☐ C016 Control - Over/Under Voltage/Frequency, Source 2
- ☐ C017 Control - Over/Under Voltage/Frequency, Source 1

Programmed Transition

Slows switch operation for an adjustable delay period to provide an open period during transfer (and retransfer).

- ☐ J021 Prgm Transition, 1-7.5 sec.
- ☐ J022 Prgm Transition, 1-60 sec.

Exerciser Clock

- ☐ J001 7-day solid-state exerciser clock

Battery Chargers

- ☐ K001 Battery Charger - 2 amps, 12/24 volts
- ☐ K002 Battery Charger - 10 amps, 12 volts
- ☐ K003 Battery Charger - 10 amps, 24 volts

Auxiliary Relays

Relays are UL-Listed and factory installed. All relays provide (2) normally open and (2) normal closed isolated contacts rated 10A @ 600 VAC. Relay terminals accept (1) 18 ga. to (2) 12 ga. wires per terminal

- ☐ L001 Aux Relay - 24 VAC Coil
Installed, not wired (for customer use).
- ☐ L002 Aux Relay - Emergency Position
Relay energized when OT-III in Source 2 (Emergency) position.
- ☐ L003 Aux Relay - Normal Position.
Relay energized when OT-III in Source 1 (Normal) position
- ☐ L004 Aux Relay - Emergency Source
Relay energized when Source 2 (Emergency) available.
- ☐ L005 Aux Relay - Normal Source
Relay energized when Source 1 (Normal) available
- ☐ L101/201 Aux Relay
(L101 - 24 VDC; L201 - 12 VDC) Installed, not wired
- ☐ L102/202 Aux Relay - Emergency Position
(L102 - 24 VDC; L202 - 12 VDC)
Relay energized when OT-III in Source 2 (Emergency) position. Wired from OT-III Auxiliary contacts, control power derived from genset starting batteries.
- ☐ L103/203 Aux Relay - Normal Position
(L103 - 24 VDC; L203 - 12 VDC)
Relay energized when OT - III in Source 1 (Normal) position. Wired from OT - III auxiliary contacts, control power derived from genset starting battery.
- ☐ L104/204 Aux Relay - Genset Start Contacts
(L104 - 24 VDC; L204 - 12 VDC)
Provides additional isolated contacts to indicate genset starting signal has been initiated.

Applications Modules

- ☐ M001 Module - Signal.
Provides remote indication of voltage sensing outputs and pre/post transfer signals.
- ☐ M002 Module - 3 wire start
For use with Onan air-cooled gensets, (3 wire start)
- ☐ M003 Terminal Block - 30 points (not wired).
- ☐ M004 Monitor - Phase Sequence/Balance.
- ☐ M006 Sequencer - Genset to Genset (12 VDC)
Controls which genset starts first in a genset to genset standby application.
- ☐ M007 Load Shed - From Emergency
Drives OT-III to neutral position when remote signal contact closes.
- ☐ M008 Module - Alarm
Provides visual and audible indication when switch is connected to emergency source.
- ☐ M010 Sequencer - Standby Set Start (24 VDC)
Controls which genset starts first in a genset to genset standby application.
- ☐ N001 Switch - Auto/Manual Change enables or disables automatic retransfer.
- ☐ N002 Terminal Block - Battery Charger Alarms.
- ☐ N005 Term Blk - Src 1/2 Rmt Signal.
- ☐ N008 Terminal Lugs - Cable, (1600 - 3000 amps only)
- ☐ N009 Power Connect - Bus Stabs, (150 - 1000 amp open construction only)

See your distributor for more information.



Onan

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Minneapolis, MN 55432
612-574-5000
Fax: 612-574-8087

Onan is a registered trademark of Onan Corporation

Backfeed to a utility system can cause electrocution and/or property damage. Do not connect to any building's electrical system except through an approved device or after building main switch is opened.

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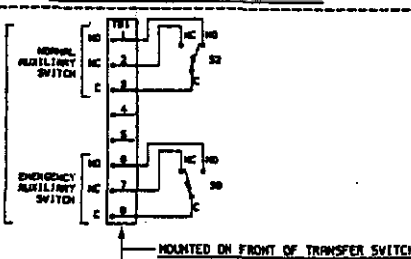
Onan Corporation 10/96 Bulletin S-1006a

626-1762, 1 of 5

CUSTOMER CONNECTIONS

STANDARD CONNECTIONS AVAILABLE ON ALL UNITS.

FOR CUSTOMER USE TRANSFER SWITCH AUXILIARY CONTACTS RATED: 10 AMPS 250 VAC



MOUNTED ON FRONT OF TRANSFER SWITCH

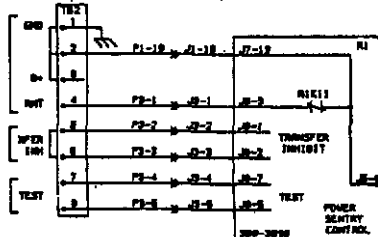
TO ENGINE GENERATOR CONTROL.

WIRE TO LIKE TERMINALS ON ANY
GENSET EXCEPT AIR COOLED SETS
WITH THREE WIRE CONTROL.
SEE THREE WIRE OPTION BELOW.
ON PARALLELING SYSTEMS, REFER TO
SYSTEM INTERCONNECTION DRAWING
FOR CORRECT WIRING.

FOR PARALLELING SYSTEMS ONLY.
REMOVE JUMPER WHEN CONNECTING
PRIORITY CONTROLS.

FOR CUSTOMER USE

FOR REMOTE TESTING OR OVER
PROTECTION, CONNECT A NORMALLY
CLOSED CONTACT. (CLOSE TO TEST)



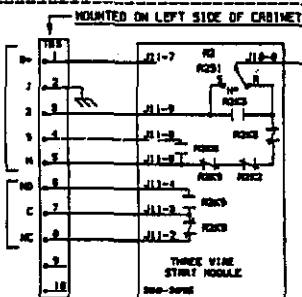
OPTIONAL: THREE WIRE CONTROL

INSTALLATION DWG. 626-1774

FOR AIR COOLED GENSETS WITH
THREE WIRE CONTROL ONLY.
CONNECT TO LIKE TERMINALS ON THE
ENGINE GENERATOR CONTROL.

IMPORTANT: WHEN USING THIS OPTION,
DO NOT CONNECT ANY LINES
TO T20 - 1, 2, 3 OR 4.
MOVE THE JUMPER FROM
T20-2, 3 TO T20-1, 2.

OVERCLOCK PLUMB CONTACT



OPTIONAL: SIGNAL MODULE

INSTALLATION DWG. 626-1775

CONTACTS RATED:
4 AMPS AT 250 VAC OR
120 VAC RMS

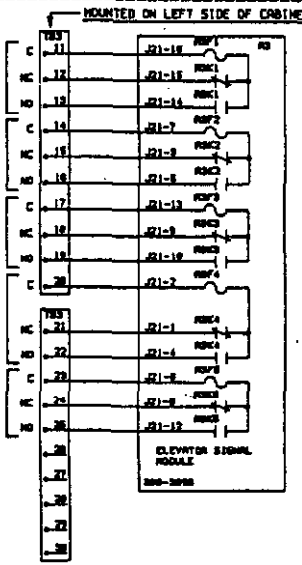
SOURCE 1
AVAILABLE
SIGNAL

TEST/
EXERCISE
SIGNAL

ELEVATOR
TRANSFER
SIGNAL

SOURCE 2
AVAILABLE
SIGNAL

BACKUP
SOURCE
AVAILABLE
SIGNAL



NOTES:

1. ALL DEVICES ARE SHOWN DE-ENERGIZED
AND WITH THE TRANSFER SWITCH
CLOSED TO NORMAL.

2. SHOWN WITH SOURCE NOT AVAILABLE.

3. SHOWN IN NORMAL POSITION. CONTACTS
TRANSFER DURING TEST OR EXERCISE
PERIOD.

4. SHOWN IN NORMAL POSITION. CONTACTS
TRANSFER FOR AN ADJUSTABLE TIME
BEFORE LOAD TRANSFER OCCURS.

5. SHOWN WITH BACKUP SOURCE NOT
AVAILABLE.

6. LEGEND:

- R1K11, R1K12 - GENSET START
RELAY
- R1K13, R1K14 - SOURCE 2 AVAILABLE
RELAY
- R1K15 - CRANK RELAY
- R1K16 - OVERCLOCK LATCH RELAY
- R1K17 - AUTO/TRANSFER/STOP
SWITCH
- R1K18 - SOURCE 1 AVAILABLE
RELAY
- R1K19 - TEST/EXERCISE RELAY
- R1K20 - ELEVATOR SIGNAL RELAY
- R1K21 - BACKUP SOURCE AVAILABLE
RELAY

7. R1, R2, AND R3 ARE MOUNTED ON THE DOOR.

- 8. SEE SHEET 3.
- 9. SEE SHEET 2.
- 10. SEE SHEET 4.
- 11. SEE SHEET 4.
- 12. SEE SHEET 5.
- 13. SEE SHEET 5.
- 14. SEE SHEET 6.

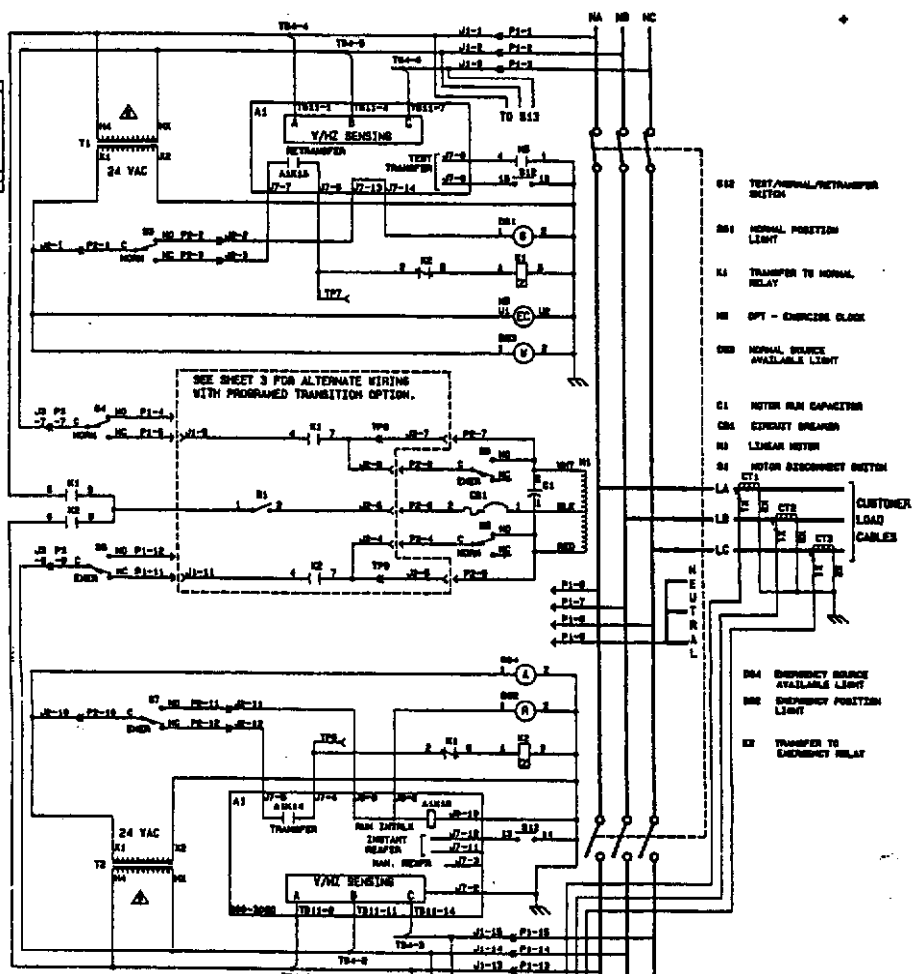
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626-1762 SHEET C

S12

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1 = CLOSED
2 = REMITTARY



SEE SHEET 3 FOR ALTERNATE WIRING WITH PROGRAMED TRANSITION OPTION.

626-1762 C

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30

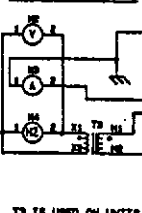
626-1762 C

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30

S13

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30

METERS ARE OPTIONAL



1 = CLOSED
2 = REMITTARY

NOTES

- 1. ALL DEVICES ARE SHOWN DE-ENERGIZED AND WITH THE TRANSFER SWITCH CLOSED TO NORMAL.
- 2. SEE SHEET 3 FOR PRIMARY CONNECTIONS.

626-1762 SHEET C

SCHEMATIC & W.D.

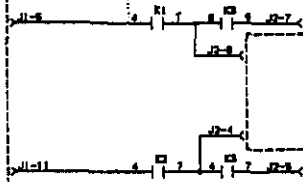
626-1762 SHEET C

626-1762 C

626-1762 SHEET C

626-1776 AUTO/MANUAL RETRANSFER SELECTOR SWITCH

TO TPD (EC-2)
TRANSFER TO



4

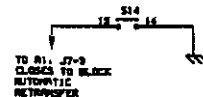
TO THE KEL-31
TRANSFER TO
EMERGENCY
24 VAC

BATTERY CHARGER MODEL 9

FOR WIRING OF FACTORY INSTALLED BATTERY CHARGER.
REFER TO DRAWING 628-1778.

626-1776 AUTO/MANUAL RETRANSFER SELECTOR SWITCH

514



TO AIR 57-3
CLOSES TO BLACK
AUTOMATIC
RETROFLECT

Q1451 200Y REF 025

FOR VIEWING OF FACTORY INSTALLED AC GROUNDING RELAYS.
REFER TO DRAWING 820-1776.

FOR WIRING OF FACTORY INSTALLED OR FIELD INST. RELAYS.
REFER TO DRAWING 636-1771 (12VDC), OR 636-1772 (24VDC).

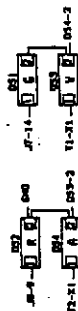
LINE TO LINE VOLTAGE	TRANSFORMER CONNECTIONS			
249 VAC 1 PH				
288 VAC 3 PH				
248 VAC 3 PH				
408 VAC 3 PH				
347 VAC 3 PH				
368 VAC 3 PH				
418 VAC 3 PH				

ON 240 VAC, 1 PHASE, REMOVE LINES FROM WIRES MARKED (AC) AND (EC). TIE THESE WIRES BACK INTO THE WIRE HARNESS.

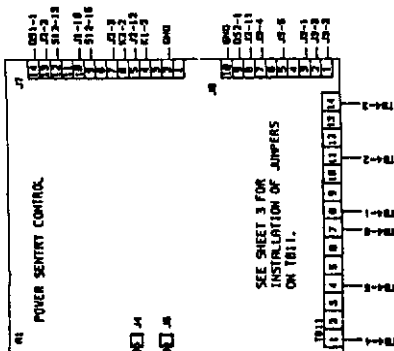
FDR 128 VAC, 1 PHASE, SEE 626-1758.
FDR 608 VAC, 3 PHASE, SEE 626-1765.

626-1762

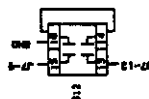
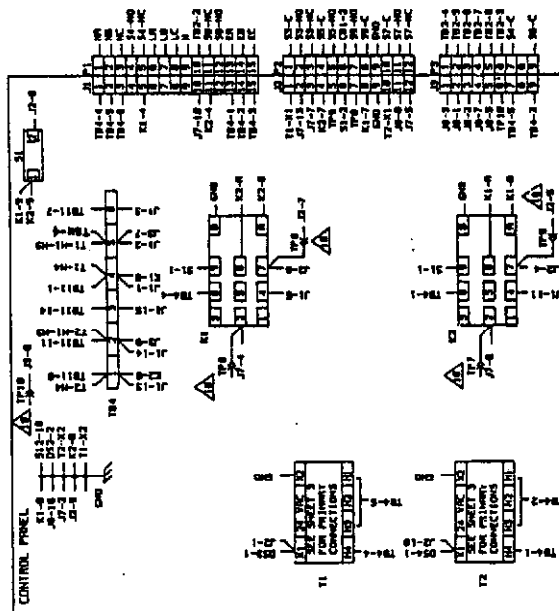
[illegible]



NEAR VIEW OF DOOR



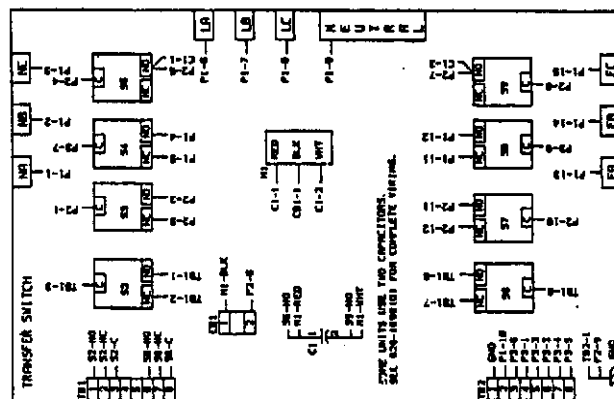
SEE SHEET 3 FOR
INSTALLATION OF JUMPERS
ON TAIL.



Notes

TYPE TINY TP18 ARE .75 INCH INSULATED
WAGON TERMINALS FOR ACCESSORY CONNECTIONS.
FOR WAGON & FOR DETAILS.

PRESENT WALL OF CABINET

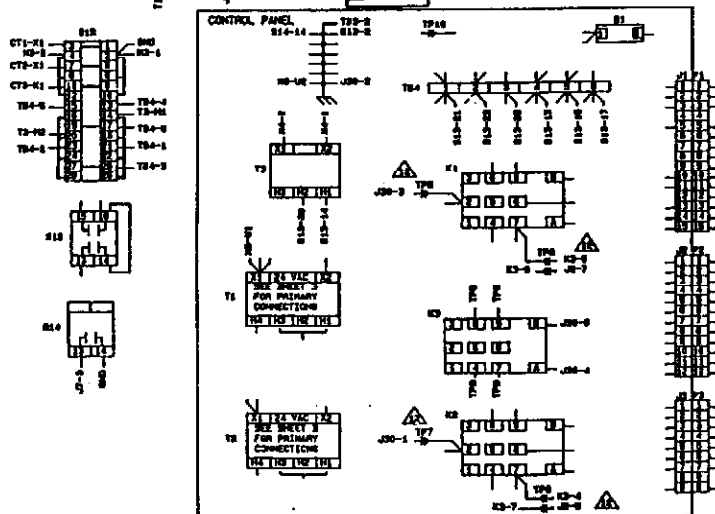
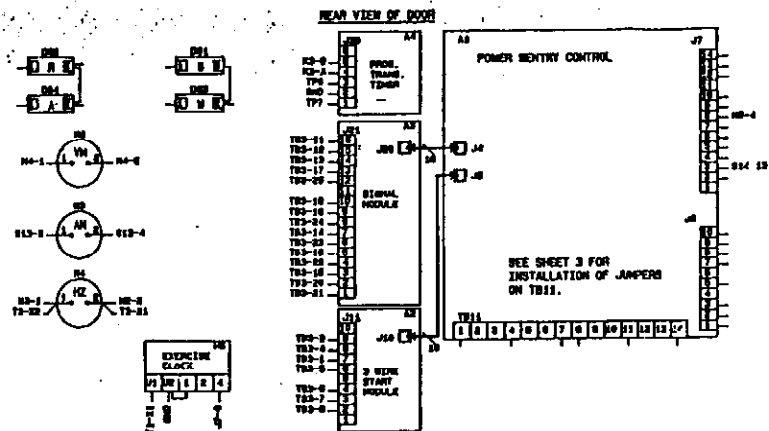





TYPE UNIT USE TWO CAPACITORS.
 1. 930-1100101 FOR COMPLETE WIRING.

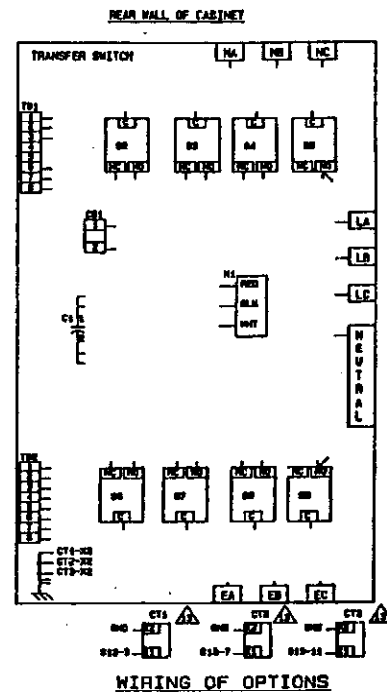
STANDARD WIRING

[illegible]

626-1762 ²⁰⁷ 705 C

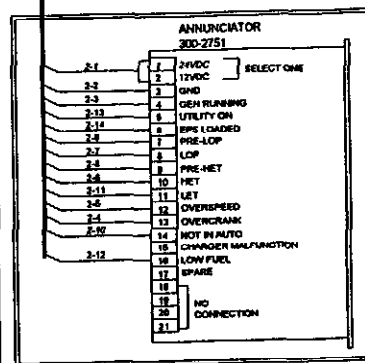
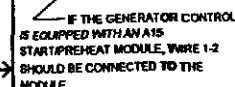


NOTES:  TP9 THRU TP10 ARE .001 INCH DIAMETER
 ROUTE LEAD POWER EARLIER THROUGH CURRENT TRANSFORMERS.
 CTS - A PHASE, CTE - B PHASE, CTF - C PHASE.
 CUSTOMER CONNECTION TERMINAL BLOCK.
 SEE SHEET 3 FOR DETAILS.

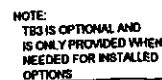
[illegible][illegible]

MICROFILMED

ONAN ENGINE/CUMMINS GENERATOR SET WITH DETECTOR 7
OR DETECTOR 12 CONTROL (SERIES DV, DG, EN,
(NOTE 4), DL (NOTE 5), DF, DK, DN)



MOUNTED IN OT/RT CABINET

[illegible]

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 52									
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